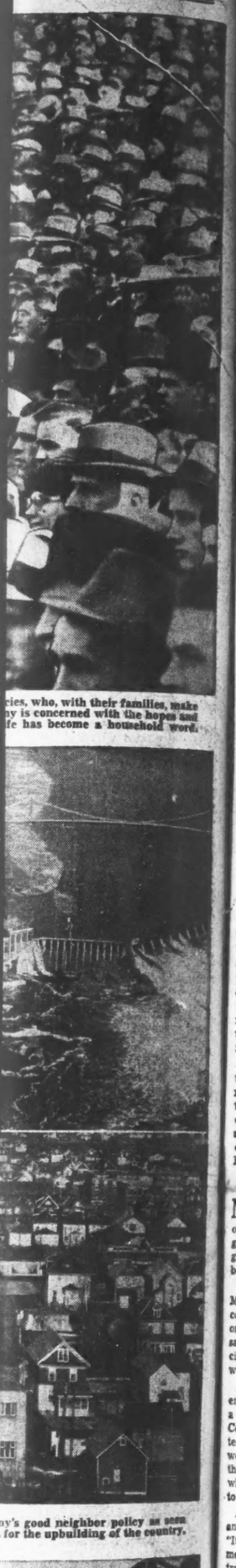

cies, who, with their families, make
ny is concerned with the hopes and
fe has become a household word.

any's good neighbor policy as seen
a for the upbuilding of the country.

f present head office building. Plans
w completed for the construction of
rge addition in the near future.

The Nation's Business

THE FINANCIAL POST

The Canadian Newspaper for Businessmen and Investors

Largest Circulation of All Canadian Financial Papers

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War Policy Must Heed Future Consequences

THE emergency of war demands speed and action in the conduct of public business.

Policies which might be weighed for months and years in time of peace may demand immediate settlement under pressure of hostilities. Jobs which peacetime political leadership has neglected or ignored often require to be tackled and finished overnight.

In the last war, Canada made too many of these snap decisions with little or no thought for the ultimate, long-term consequences. Some of these decisions—our wartime railway policy for example—have since proved costly beyond all reckoning. Post-war experience has shown that such decisions would never have been made had long-term as well as immediate considerations been taken into account.

In this war, Canada has an opportunity to profit by the mistakes of 1914-18.

The pitfall of deciding great national issues in terms of the immediate needs of a war economy without consideration of the long-term view is one which must be avoided. Such matters as national transportation policy, our constitutional issue, control of wheat production and marketing are cases in point.

Speeding and facilitating the nation's business so as to meet war emergencies is important. Equally important is the requirement that wartime policies do not jeopardize the financial and economic future of Canada and Canadians.

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Union Government Not Needed

NOTHING in past history or in current political experience supports the view that because Canada is at war, union or national government is essential.

On the contrary, there is as yet no sufficient reason for scrapping the two-party system and sacrificing parliamentary freedom.

In the early years of the last war, the opposition played an important rôle in checking waste and extravagance of the type which war so easily breeds. Had it been even more alert and vigorous, some of the early, tragic mistakes might perhaps have been avoided.

• • •

MORE often than not union government breeds a wasteful type of administration. Coalition of a government party with opposition groups tends to remove what should be a healthy, restraining influence.

In the present emergency Dr. Manion can do his best work by co-operating with the Government on broad questions of policy, at the same time remaining free to criticize and expose any evidences of waste and inefficiency.

Already the Mackenzie King Government is hampered by too large a representation in the House of Commons. Were the Prime Minister to head a union government he would be further embarrassed by the demands of opposition groups who felt that they too had a right to ask favors.

As Liberal Prime Minister Alexander Mackenzie once remarked: "It takes more of my time seeing men seeking government jobs, contracts or other party favors than in governing the country."

A union administration at Ottawa would find this type of pressure doubled or tripled if the cabinet included men from opposition benches.

• • •

THE function of government at this time is clearly marked.

It should reorganize the cabinet without delay so as to strengthen cabinet councils and ensure that all key positions are in the hands of men of ability, high character and successful administrative experience.

It should conscript the best technical and administrative brains in Canada to ensure that every branch of Canada's war effort is organized and co-ordinated without delay and with the utmost speed and efficiency.

If opposition groups are alert and eager to serve Canada in the present crisis they will insist that immediate and effective action along these lines be taken. In so doing they will assist Canada's war effort more effectively than if they were to sacrifice their parliamentary freedom by scrapping the traditional two-party system for a union government.

• • •

Not All Germans Are "Huns"

WITH the war a few hours old, a youngster asked his dad what the word "Hun" meant. The boy had never heard or seen the word until it screamed at him in a news headline.

To those of us who went through the last war the "unspeakable Hun" meant everything loathsome, bestial, contemptible. So violent was the allied passion and hatred of the "Hun" that when the war was over, commonsense and impartial judgment had almost completely disappeared. The victorious Allies clamored for the devilish sort of

(Continued on page 2, col. 4)

Expeditionary Force Omitted In War Plans

Union Government Also Shelved in Early Programme

CABINET CHANGES

From Our Own Correspondent

OTTAWA. — From the moment word of Hitler's assault on Poland reached Ottawa, the capital seethed with excitement of war preparations.

While Premier Mackenzie King promptly pledged Canada to the Motherland, he was extraordinarily careful in his public commitments. Technically this country was not at war prior to assembly of Parliament, though all indications were the session would authorize a war declaration along the line of the Australian declaration

In absence of any word as to an expeditionary force, enlistments in preliminary recruiting were for active service within this country. Every man would have to re-enlist for service overseas.

The cabinet, proceeding amid a multitude of problems whose complexities are beyond description, has been chiefly concerned this week in placing this country on a war footing and preparing a programme for Parliament. At mid-week there was no sign an expeditionary force would be proposed to Parliament. The government seemed likely to follow the line that soldiers can be trained just as effectively here as in Britain and that the character of Canada's assistance will be decided in consultation with the British Government.

Ralston to be Added

One immediate change in the cabinet which is now imminent is inclusion of Hon. J. L. Ralston. Early reports suggested that Mr. Ralston would be drafted to the defense portfolio, thus presaging a general cabinet shuffle. More recent discussion couples his name with the obvious vacancy in the Department of Finance—the vacancy created by the illness of Hon. Charles Dunning.

As time goes on, Premier Angus Macdonald is another likely recruit to Ottawa ranks.

No Union Plan

There is no serious talk as yet of national government. This is partly because the Government does not yet feel the need of one. It is partly because Quebec associates an early national government with conscription and immediate action might destroy the mood of co-operation now prevailing in French Canada.

Thus pre-assembly indications were that the war session is likely to bring war measures of far reaching importance, including unlimited money appropriations, but no expeditionary force or union of the political parties.

In the minds of ministers, Quebec is bulking very large these days. So

(Continued on page 2, col. 6)

No Cancellation Public Contracts

Ottawa Will Go Ahead With Jobs Already Planned

From Our Own Correspondent

OTTAWA.—While there has been no discussion in cabinet, the general view of ministers is that there will be no cancellation of public works contracts as a result of the war.

Apparently there is widespread anxiety, particularly in municipal circles, that the public works contemplated as relief measures and the works which would be built under the Federal-provincial agreements might be cancelled. But there is no indication whatsoever that the Dominion will cancel any contract which has been awarded or make any effort to withdraw from any agreement which is signed.

This holds good, as well, with respect to public works contracts such as the Toronto post office contract and the dredging contract for Port Arthur. In so far as agreements with the provinces go, the Dominion has completed such agreements with all of the provinces. These agreements cover self liquidating public works, grants for provincial highway construction and the like. The Dominion will carry its agreements out to the letter.

Currency Drop Increases Tax

Decline of the Canadian dollar in relation to the U. S. dollar has brought an additional penalty to Canadian investors holding Canadian securities on which dividend or interest is payable in U. S. funds.

According to the Income Tax Act, an additional 5% is imposed on securities, excepting government obligations, when the currency in which the dividend or interest is payable is at a premium of 5% or more. This measure was brought into effect by Orders-in-Council in 1933, the last time that U. S. funds sold at premium of 5% and was again imposed within the past week. The tax does not apply to dividends or interest paid on U. S. bonds or stocks to owners in this country.

Efficiency is Need As We Go to War

Britain Conscripts Her Strongest Men and Canada Should Do Likewise ... Gravest Need is New Direction in National Defense

Canada enters the war with all parts of the country united in their determination to make this country's contribution to the common cause a worthy one.

Prime Minister King, in his statement to the Canadian people, emphasized the need for the most effective measures of co-operation and defense. No one can doubt that Parliament, speaking for the Canadian people, will seek to implement that promise of effective co-operation.

Effective co-operation implies more than just an anxious desire to do something. It implies efficiency as well as anxiety; and results as well as promises.

If Canada is to play the rôle in this war that our great resources and our extensive industrial equipment clearly indicate for us, there must be competent businesslike leadership and direction at the top.

We have not had such competent direction in these recent years. Every militia officer knows how our army units have had to struggle along without necessary equipment for training purposes; and how today they are given the difficult task of bringing their regiments even up to peacetime strength under serious difficulties that are the product of short-sightedness and inefficiency at Ottawa.

The public, too — and particularly those who have read The Financial Post's many articles on the subject—know something of the story of our unhappy laggardness in preparing; of patronage in contracts; of the very negation of co-operation with industrialists in preparing for the war that has long threatened; in the "selection" of political friends to receive cost-plus contracts.

• • •

In the last war Britain's effort was hampered by muddling in the supply of munitions. It took more than a year of reverses and much courageous criticism from press and public before Britain got a cabinet of action and an efficient organization of supply.

In this war Britain has spared itself the risk of muddling. She has had a drastic cabinet revision right at the start. She has conscripted her best industrial brains to push forward the production effort.

In the last war Canada's heart was in the right place but there were, in the early years of the struggle, too many men in charge of affairs whose heads were not as good as their hearts. Bitter public resentment and criticism of the Minister of Militia; of the personal favoritism shown to profitseeking contractors and suppliers; of the supply of second-rate material to men who were offering themselves for sacrifice, took a long time to come to the surface. But ultimately the unhappy truth did emerge. The Canadian people heard with distress of the heartless incompetence with which certain members of the Government backed up the valorous deeds of the soldiers at the front.

In Canada, as in Britain, the truth led to action. In the closing years of the war, patronage and profiteering were ruled out. Great administrative leaders were conscripted to put all phases of the war effort on a businesslike basis of economical efficiency.

• • •

These facts are worthy of recall as Canada enters this renewal of the Great War that we all thought had ended in 1918.

The Canadian people will not remain supinely silent if inefficiency and bungling rule in any phase of our national war effort. They demand that it be eliminated right at the start.

Canadians cannot feel very proud of their record of recent years in preparing for the present effort. Canadian industry has sought for three years to organize itself for the supreme tests of war production. It has sought co-operation from Ottawa in learning how to perform the task that has now fallen to its lot. Ottawa—pursuing the chimera of isolation—has denied such industry adequate opportunity to get ready.

Even in the small effort we have made we have been unaggressive and inefficient. Patronage, political favoritism and dilatoriness have caused this country to lag far behind the rest of the Empire, in preparing for the prodigious task that has now fallen to us.

These things, we hope, are in the past. They will, we trust, be liquidated at once by the government of Mr. King.

• • •

The desperate need today is for unanimity in Canada; for confidence, courage and action.

That unanimity, that courage, that confidence, that action, can come only under the leadership of the country's best men.

The immediate reconstruction of the Dominion Cabinet is an urgent necessity. Men of proved ability and strength should be put in charge of the management of Canada's participation in the war.

Of all the changes that are urgently demanded by the present situation none is more pressing than that the nation's defenses be at once put under efficient and businesslike direction—under a control and direction worthy of the unselfish thousands of officers and men who have already left their offices and factories in answer to the call to arms.

Let us not in a time of crisis mince our words or fail to speak plainly where plain speaking is necessary.

The biggest hole in Canada's front line is the direction of the Department of National Defense. That hole should be plugged without delay.

Mr. Mackenzie should at once be replaced by a stronger, more experienced, more efficient administrator.

Canada's Strength In Peace and War

With this issue, The Financial Post presents a 32-page supplement portraying the dramatic story of what engineering has done to make Canada a great nation.

Several months of planning and editing have gone in this supplement, which has been prepared in co-operation with leaders in the engineering profession throughout Canada.

As the work proceeded the war clouds hung low on the horizon. But the decision of the engineers and of the editors was unanimous that, so long as there was a chance for peace, work on the issue should not be interrupted.

Last week the supplement was put to press. Before it could be distributed with this week's issue the efforts to avert war had finally ended in failure.

But Canadians will find in this supplement an inspiring record of the great industrial resources and the industrial skill that Canada can throw into the war effort.

Canadian engineers and Canadian industry have conquered the natural obstacles of Canada's terrain. They have solved problems of production and distribution.

Today in war they have a role to perform. It is a role they will fill with no less courage, foresight and understanding than the role they filled in times of peace.

Thus to Canadians at war this 32-page supplement, "Builders of Canada," will be a source of confidence and inspiration.

Canada is rich in natural wealth. It is skilled in the art of turning that natural wealth to productive account. It has engineers, technicians, industrialists and managers competent to organize the production of what the nation needs—whether in peace or war.

Pay-as-You-Go Seen as Basis Of War Finance

Minimum of Borrowing and That at Lowest Rates

NO IMPOVERISHMENT

From Our Own Correspondent

OTTAWA.—The Government has not yet had an opportunity to frame a war finance policy. Permanent officials have given the matter much thought over the past few months and have ideas to present to the Government. But Canada has not had a Minister of Finance for some weeks. And it has entered the war with very little of the advance preparation—in the fields of defense supply, militia organization, national service registration and financial plans—that has been so carefully undertaken in the United Kingdom and even in the neutral United States.

Under such circumstances it is most difficult to forecast what measures the Government may decide to take in financing Canada's share of the great war effort. But it is believed that the ministry will be guided to no little extent by the advice of its technical authorities. There are some clues as to what they are thinking.

"Pay-as-you-go"

It seems certain that one major objective will be to finance the war in such a manner that when peace comes we shall have not achieved a position in which a few people emerge with a mortgage on all the other people.

This implies the use of the "pay-as-you-go" principle to the maximum possible degree. To put it another way, it means that the Government will demand of everyone with an income or with a dollar of invested capital the maximum possible sacrifice.

This implies increased taxation; taxation that will fall with heavy weight upon all those deriving normal or increased incomes out of the

(Continued on page 2, col. 5)

Arms Mission Meets Success

But Change in War Profits Limitation Is Unlikely

From Our Own Correspondent

OTTAWA. — Efforts of Canadian manufacturers to persuade the Government to repeal the 5% profit limit section of the Defense Purchasing Act have failed, it is learned authoritatively. A committee representing Canadian manufacturers which met the Government Tuesday made no progress in this direction.

Chief purpose of the Tuesday meeting was to bring together a subcommittee of Council and representatives of the Canadian Manufacturers' Association industrial mission to Great Britain. This mission returned from the Old Country over the week end.

Considerable satisfaction is expressed at the results of this mission. Though no official statement has been issued since the return of the industrialists, The Post is informed that the visit was a distinct success.

It is also believed that the prospect of war orders being placed by the Canadian Government in conjunction with the British Government is also promising. Definite negotiations with British authorities are expected to take place next week.

5% Clause a Stumbling Block

One present stumbling block in the placing of domestic defense contracts is the much-criticized 5% profit limitation clause. Presence of this clause is reported to have brought to a standstill the placing of anything but competitive contracts at Ottawa. Although this feature of the defense Purchasing Board Act has only been in operation a short while, it has been operative long enough to indicate conclusively that while it remains in its present form there is little or no chance of doing business on a non-competitive basis.

Parliament, when it meets this week, is expected to take a vigorous stand against war profiteering of any sort or description. Therefore repeal of this 5% clause is deemed politically impossible.

Can. Breweries Earnings Higher

Canadian Breweries Ltd. reports earnings for the three months ended July 31, 1939, of $316,148, after expenses but before provision for Federal taxes and minority interests. This compares with earnings of $309,748 for the corresponding quarter of last year.

For the 12 months ended July 31, 1939, the company reports net profits of $438,173 after all charges, including taxes and provision for minority interests. This compares with $387,202 for the 12 months ended July 31 a year ago. On the preference stock, the latest period profits are equivalent to $2.68 a share as compared with $2.37 a share for the 12 months ended July 31, 1938. The company's year ends Oct. 31. Balance sheet as of July 31 reflects issue of another $100,000 of debentures, bringing funded debt to $1.6 million.

Canada on Full Time With Empire at War

War . . . and Business

Under the present United States neutrality law wartime trade between that country and the allies, or even with Canada, would be crippled. Revision of the law, however, is seen as certain by the Washington correspondent of The Financial Post.—P. 10.

Other articles dealing with the effect of war on Canada are:

Bonds:
High Grades Steady—p. 5.
Commodities:
Commodity Prices Rise—p. 5.
Construction:
Gaining as War Broke—p. 9.
Insurance:
New Life Assurance—p. 2.
Mining:
Base Metals Prices—p. 14.
Industrial Organization:
Effect of War on Industries—p. 4.
Governmental:
Cabinet Seeks to Hold—p. 13.

Interest Rates To be Checked

Expect Bonds Will Not Yield Same as 1914-18

Canadian Investors cannot expect interest rates on Government obligations, comparable to those of the last war, a competent authority tells The Financial Post.

Like many other conditions that have been changed this time, the Government, it is expected, will be able to borrow funds at considerably lower rates than in 1914-1918. It furthermore may ask Canadian investors to co-operate in making adequate funds available at reasonable yields, it is stated.

The Government is likely to bend every effort toward financing expenditures from taxation and a minimum of funds will come from borrowings.

While the Government has not set its whole machinery in operation to influence the market, it has already stepped in to cushion the effect of declining prices of high-grade obligations. This is regarded as a purely temporary affair as no serious decline in the market is expected once the immediate uncertainty has passed.

There may be no pegging of prices, according to the opinion of one authority. He said: "Pegged prices are unsound prices."

There will be much new wealth created, The Financial Post was informed, and this will create funds for investment in Government and other securities. Savings accumulations will find an outlet in Canadian industry, tremendously stimulated by wartime activity.

See Output of Every Factory and Field to Provide Sinews of War Needed by Great Britain and Her Allies

Canada's idle days of peace are at an end.

With the Empire and France at war with the Nazis, demand is seen overnight for every man, every machine and every acre in this Dominion. Actual outbreak of war, experienced observers tell The Financial Post, will mean some dislocation and some re-orientation of business. But ultimately and speedily full time production for the whole of our industrial and agricultural machinery will have to be assured.

This new Great War, military and industrial strategists explain, will not follow the slow pattern of 1914. That outbreak came without warning, so far as industry in Britain and Canada were concerned. It took enlistment more than 12 months to absorb our unemployed. It took factories almost two years to become efficient in turning out munitions.

This time, it is stated, there will be no such lag. The advance warning was given a year or more ago, the industrial machine is now ready to mobilize.

Reports from Ottawa indicate that enlistment in special services is planned, home defense and airmen and technicians for the British air force, should absorb a substantial portion of our present unemployed or take skilled men who will have to be replaced. With the war less than a week old, already thousands of young men have "joined up," their previously precarious incomes replaced by a regular $1.30 per day, plus keep.

But in this war it is the factories and farms of Canada that are expected to become the real absorbers of surplus man and woman power. To supply the modern guns now booming in the Rhineland and keeping the skies clear above Paris and London, a stupendous amount of ammunition will be required.

A modern six-gun battery of 25-pounders, it is estimated can easily fire 45 tons of shells in a single hour of heavy fighting. An anti-aircraft battery will use much more.

To maintain a steady supply of shells, to provide motor trucks to carry them from railhead to battery, to provide small arms and trench mortar ammunition, it is believed, will mean day and night shifts for every suitable factory in Great Britain and Canada.

There will also be needed airplanes, tanks, uniforms, gas masks and other equipment.

But feeding the guns, it is anticipated, will only be half the job. The men who fire these guns and who operate the long lines of communication, must be fed and clothed. In the last war every bushel of wheat, every pound of beef and bacon, every cheese, every tin of vegetables, milk and jam, that could be spared from Canada, went across the Atlantic.

Already the wheat market at Winnipeg indicates that the demand this time will be no less keen. Uniforms and other textiles may well be supplied from Canada in large volume.

In this new war demand is seen an immediate and tremendous expansion for Canadian business.

Practically every day this week the wheat market has moved up the full maximum five cents per bushel. Before the rise the Dominion treasury was facing a hundred million dollar loss on the handling of this year's crop. Already the jump in price eliminates that. The October wheat option is now ranging well above the 70 cents Government minimum, fixed at the last month to cover generously cost of production and a moderate profit to the grower.

Every cent raise in wheat above 70, on the basis of a 400-million bushel crop, means $4 millions extra purchasing power for the farmers of western Canada.

Every man taken off relief and put into the factories producing war supplies means extra purchasing power.

Every extra pound of copper, lead and zinc mined, every extra hog raised, every extra yard of cloth produced for the allied armies—all will have the same result.

Expect Canadian Trade To Be Extended By War

Present Indications, Past Experience Point to Prosperous Trend

From Our Own Correspondent

OTTAWA.—Except that the Government is much better informed regarding the general line of policy which Britain will follow in prosecuting the war, Ottawa is in no better position than the businessmen of the country to foresee what will happen to Canada's external trade.

One thing, however, is certain. The British blockade this time will be tight as human ingenuity and heroism can make it and will extend, at once, far beyond the limits imposed at the beginning of the last war. All of Canada's trade, except the interchange of goods with the United States, will be profoundly affected by war.

But it is believed to be true that on the whole, Canadian trade will prosper greatly; that prospects are for expansion, particularly expansion of exports.

Setback Brief

If the pattern followed this time bears any resemblance to that of the Great War, the trade set-back will be limited to a brief period, at most a year. In 1913-1914, Canada's imports were $619 millions and in the first war year they dropped sharply to less than $500 millions. They then recovered steadily, reaching almost $920 millions in the last year of the war.

This is by no means a record figure for Canada, but it is well above the total of imports in any year since the beginning of the depression.

Exports, during the last war, rose from the outset of hostilities. The total export in 1913-1914 was almost 455.5 millions. The next year the total was $461.4 millions, and so it went until a grand total of $1,586,160,792 was reached in 1917-1918. This is the greatest export year in Canada's history. Exports in 1926-29 were a shade under $1.400 millions.

Sure of Expansion

There is no doubt at Ottawa that the export trade will expand this time even more rapidly than in 1914-18. Much of the outward bound goods will be war materials and, therefore, of no permanent significance. But Canada's production today is so much more varied than in 1914-18, the industrial plant is so much greater and more efficient, that the expectation is that all records for export will very quickly be surpassed.

Canada's trade in the fiscal year ended March 31, last, was over $1,600 millions, of which $969.7 millions was for export.

A good deal of this trade, ordinarily, would be unaffected. Our imports from the United States were $412 millions and war will not dir-

(Continued on page 3)

Dom. Foundries Outlook Good

Though earnings of Dominion Foundries & Steel Ltd. for the first nine months of 1939 have been under last year's record level, The Financial Post is told, the decline is of comparatively small proportions.

The tin plate mill continues to work at capacity, with added demand being noted from smaller miscellaneous users. Orders for railroad equipment have been less and the foundry departments have been less active than a year ago. Outlook for the balance of the year, so far as can be seen at present, is stated to be favorable.

It is understood that no actual plans for offering of rights to shareholders, as authorized some time ago, have yet been completed although it is expected that some action may come comparatively soon.

Highlights

Crude oil and gasoline showed sensational price rises in the last war. Lately, these commodities have been declining with unfortunate results to earnings of producers such as International Petroleum Co. What war may do to this company is the subject of a feature story. *"Pete"—Producing War Necessity—p. 16.*

• • •

Canadian newsprint demand shows signs of sharp recovery with war cutting off competition. Securities of pulp and paper companies made spectacular gains on post-holiday markets. What is behind this is shown by a careful analysis. *Newsprint Faces—p. 10.*

• • •

Canada's steel industry has made a relatively favorable showing this year under difficult conditions. Steel and its various products are widely regarded as under greatly accelerated demands in times of war. *Dosco's Position in War—p. 11.*

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General Index on p. 2.

See U.S. Avoiding Currency Upset

Will Not Take Action to Embarrass Canada

Unofficial advices from Ottawa indicate the belief there that the United States Government will avoid any action embarrassing to Canada in the present crisis. Accordingly it is believed that the trade treaty between the two countries will be allowed to remain in force; although the present discount of the Canadian dollar works to the disadvantage of United States exporters.

Under Article 13 of the treaty the agreement may be modified or terminated when the rate of exchange varies so as to prejudice the position of either country. Obviously the heavy discount on the Canadian dollar works like an additional tariff against United States exporters, while giving an inducement to United States citizens to buy goods here where their dollar is worth $1.09.

New Fall Styles Have Arrived!

Good husky shoes for Fall that give up nothing of their good looks for long wear and real comfort! This famous line of shoes is made in the "Burns country" of leather from Martin's, one of Scotland's leading tanners, and are exclusive with EATON'S. Models sketched in Black or Brown calf. Sizes 5½ to 12, widths A to E in the range **8.50 PAIR**

SECOND FLOOR — QUEEN & JAMES STREETS.

THE T. EATON CO LIMITED

Lake Shore's Profit Lower

Expect No Profit Increase Although Lowest Level Results Excellent

Increased expenditures for wages and materials together with a somewhat lower grade of ore milled, resulted in a decrease in net profits for Lake Shore Mines for the year ended June 30, 1939, with the net profit of $7,070,767 equal to $3.54 a share compared with the $3.87 a share reported for the previous fiscal year.

President W. P. St. Charles in his remarks to shareholders, states that while development results to date on the lowest level have been excellent, it is not anticipated that there will be any increase in earnings. The mine manager's report shows that on the lowest level at 4,450 ft., some 2,448 ft. of drifting was completed during the year with the 1,790 ft. of ore opened up averaging 0.789 oz. gold per ton across an average width of 53.5 inches.

Kirkland Basin Work

During the year a crosscut was driven into the Kirkland Basin property for 1,499 ft. and 563 ft. of drifting was done from the end of it; also 6,640 ft. of drilling. Gold-bearing fractures were encountered but values were erratic and no payable ore has so far been developed.

During 1939, 9,893 ft. of drifting was completed on the two main veins and 4,671 ft. of ore was opened up averaging 0.79 oz. gold per ton across an average width of 53.5 inches. Of this, 1,325 ft. of ore was in the south or No. 1 vein averaging 1.04 oz. gold across an average width of 56.4 inches. Considerable work was done on subsidiary fractures during the year which accounts for a lower proportion of total drifting in ore.

During the latter part of the current fiscal year, it is planned to start work on two new levels below the present bottom level at 4,450 ft. Intensive research work has been done on the problem of ground movements and considerable success is stated to have been achieved in adapting methods to conditions which exist at depth.

Income and Surplus Account
Years Ended June 30

	1939 $	1938 $
Bullion production	14,608,715	15,030,273
Less oper. expneses:		
Devel., mining, milling and gen.	*5,659,658	5,439,281
Admin.	84,768	101,593
Oper. earnings	8,864,289	9,469,399
Add: Non-oper. inc.	19,215	31,784
Net earnings	8,883,504	9,501,183
Less: Taxes	1,367,114	1,407,300
Depreciation	445,623	361,466
Net profit	7,070,767	7,732,417
Less: Dividends	8,000,000	10,000,000
Deficit for year	929,233	2,267,583
Less: Prev. surplus	4,637,497	6,905,080
Add: Kirkland-Hudson w/o	340,896	
Surplus forward	3,359,368	4,637,497

*Including $47,458 spent on Kirkland Basin Gold Mines.

Earnings per Share & Dividend Record:

Earned	$3.54	$3.87
Paid	4.00	4.00+1.00

Working Capital
As at June 30

	1939 $	1938 $
Current assets	5,737,023	7,663,996
Current liabilities	2,010,849	1,987,244
Working capital	3,726,174	5,676,752

Europe's Share Larger Of U. S. Paper Market

From Our Own Correspondent

MONTREAL.—Import of European newsprint into the United States for the first half of 1939 totalled 159,484 tons. This represents an increase of 41,977 tons or 35.77% over the returns for the like period of 1938.

Exchange Limits Price Changes

From Our Own Correspondent

MONTREAL.—In order to prevent undue speculation, the Canadian Commodity Exchange Inc. has limited price fluctuations in butter, cheese and eggs to one cent a day. The limitation applies to transactions in spot, to arrive and futures.

According to an announcement by K. H. Olive, president of the Commodity Exchange, "all trades made during any one day shall not vary more than one cent per pound in butter and cheese, or one cent per dozen in eggs, above or below the closing price as established at the close of the preceding business session of the Exchange."

The decision of the governors of the Exchange in this connection indicates they are co-operating with the Dominion Government in preventing undue speculation and profiteering in commodities.

Washington Gets Report On Alaskan Newsprint

From Our Own Correspondent

MONTREAL.—Enough pulpwood can be cut annually in the southeastern part of Alaska, within five miles of tide water, to supply one fourth of the present newsprint needs of the United States perpetually without affecting the Alaskan forest, according to a report on Alaska made by Under Secretary of the Interior Harry Slattery to Secretary Harold L. Hickes.

The Alaskan pulpwood resources have been under investigation for several years past and at one time the American Pulp & Paper Association published a report indicating that Alaska had tremendous reserves of pulpwood which could be utilized in the manufacture of newsprint and other papers.

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The Nation's Business

(Continued from page 1)

peace that has so largely been responsible for the present disaster.

How are we going to avoid the same thing happening this time?

How are we going to face the inevitable bestiality of the coming months, and years, without reverting quickly to the thought and attitudes that made victory in 1918 such a hollow mockery?

* * *

GREAT BRITAIN, France and the Empire have gone to war against the international racketeering of Nazi gangsterism. The first important act in this war was a British air raid on Germany.

This air raid was not to deal death and destruction on helpless civilians or even on strategic military and naval positions. It was to shower on the German people a rain of peace propaganda on the long chance of gaining a better understanding of the thing for which the democracies are fighting.

British people—Canadian people—have no quarrel with the Germans. Our war is against Hitlerism; against international racketeering by Nazi gangsters.

This is the distinction to be kept in mind in the present conflict. It is a distinction that fades quickly as we revive such words as "Hun"; as we propagate sensational reports of barbarous conduct on land, on sea and in the air as "Hun atrocities."

Unless this distinction is kept clear; unless we can distinguish between Nazi gangsterism and the humanity and goodwill of tens of millions of German people with whom—basically—we have so much in common, then the chances of achieving an enduring peace at the end of the struggle are slim.

Unless such a peace can be achieved there is little point in fighting the war. Yet the peace we all seek is jeopardized by propagating the deceit that all Germans are "Huns."

Mortgage Plan Is Suspended

War Places Central Bank on Shelf for Indefinite Period

Plans for the Dominion Government's Central Mortgage Bank have been indefinitely shelved, The Financial Post is informed. The move is considered a natural consequence of Canada's participation in war, which will brush aside all but essential legislation at the present time.

There remains a possibility that when requirements of the mortgage business become known under new wartime conditions, the Government may enter into a new scheme to meet the new set of circumstances.

Because of the huge amounts of money that the Dominion will have to pour into arming the country, it is considered inadvisable for the Government to make the expenditures necessary to implement the mortgage scheme.

It is also reasoned that war conditions will bring entirely new problems in the field and will in some measure alleviate conditions in the Canadian West. Here, demand for wheat will raise the grain farmers' income and enable him to carry more easily his mortgage debt.

Restrictive Legislation

Restrictive legislation still remains as a barrier, but from past evidence it is believed that only an occasional farmer will avail himself of this protection if he is able to meet his obligations.

Acceleration of activity in the farming areas and possible industrial activities will be reflected in better collections on mortgages.

The entire mortgage picture has been altered. Trust and loan companies are appraising the new situation, with the object of adjusting their organizations to fit into the changed period, but there remain many uncertainties.

The area in which operations were least satisfactory, the West, will benefit most from war in Europe. To what extent is as yet indeterminable. Duration of the conflict and the extent of control on prices will be strong factors in placing the prosperity of the grain farmer. It is considered improbable that Canada will permit grain prices to jump to inordinate levels and profit at the expense of her allies.

If the war continues longer than the present year, and all indications point to a lengthy struggle, it is probable that the Canadian West will bring more acreage into cultivation.

The institutions are assuming a cautious attitude toward the capital requirements of the West. Experiences of the past have taught that income from western grain is anything but a constant factor. It has been not so much the ability to produce grain in the past two years, as the ability to market it at satisfactory prices. Marginal lands brought into production would be immediately dropped the moment wheat prices did not justify their cultivation. Any credit advanced on the assumption of continued production on this land would be jeopardized. It is probable that credit extended to the western farmer would be closely scrutinized.

The urban situation is not as likely to be as radically affected by war as that of the West. Eastern farmers, who have been practically no problem to the institutions, would benefit to a smaller degree than the western farmer.

Albert MacLaren Joins Bank of Nova Scotia Board

Albert Maclaren has been elected a director of the Bank of Nova Scotia. Mr. Maclaren is president of the Maclaren Power & Paper Co., president of the James Maclaren Co., and of the Maclaren Quebec Power Co.

Pay-as-You-Go War Financing

(Continued from page 1)

industrial effort associated with the war.

See Increased Income

The belief is held that there will be such a great expansion in the national income that the taxing power of the Canadian people will be tremendously increased.

In addition to increased tax revenues, the Government will have available to finance the war effort large savings from relief, wheat guarantee and other charges that have in the loafing days of peace drained the national treasury of an amount greater than the total interest charges upon the national debt.

Whether or not the Government will feel disposed to eliminate wastes and political expenditures from the national spending remains to be seen.

Some Borrowing Unavoidable

Even with the maximum reliance upon taxation to pay for Canada's war costs it is recognized that some borrowing will be necessary—possibly borrowing on a very large scale. Until United States neutrality laws are changed, borrowing in the United States will be technically impossible.

The question of interest rates upon Government borrowing is one that has aroused much discussion in financial circles. In Ottawa there is a feeling of confidence that it will at no time, even during an extended war, be necessary to pay the interest rates that were attained in the last war. In fact a part of the policy of equality of sacrifice will be an appeal for borrowings at rates of interest not substantially out of line with those now prevailing.

This is not to imply that conscription of capital is in mind. It is felt that this will never be necessary. Rather, a combination of patriotism on the part of the investors plus sound monetary and financial management by the Government will, it is hoped, enable essential war borrowing to be carried out on an economical basis.

Dollar Finds Level

There is little worrying in Ottawa about the abrupt decline in the Canadian dollar in New York. Certain groups in Canada derive a substantial benefit from this decline—notably newsprint and gold producers—but others will have to pay heavily to meet the added costs of New York funds—notably corporation and public borrowers with interest coupons payable in New York and importers of coal, machinery, automobiles, etc. The situation is regarded as one that represents an internal shift within Canada and a redistribution of benefits and losses. It is felt that, from the standpoint of Canada's economy, whether in war or in peace, the more important question is the relationship of the Canadian dollar to the pound sterling. Here the shipment of wheat, bacon and other foodstuffs and raw materials, as well as the shipment of war supplies, requires that the gap be not too wide. The decline in our dollar is regarded as the natural gravitation of our currency to its traditional position about halfway between the pound and the dollar.

No Impoverishment

Financial authorities in the nation's capital decry the idea that even an extended war effort necessarily means the impoverishment of the Canadian people. They hold the view that the terrifying financial aftermath of war is largely the result of mismanagement in the past of war financing. The totalitarian states have shown what can be done in turning idle labor and idle industrial capacity to the creation of wealth at a rate to finance a prodigious pace of expenditure—even wasteful expenditure such as rearmament or war effort. These authorities believe that if Canada enters the war determined to sacrifice a large share of current earning power—particularly the new earning power created by the industrial war effort—the worst of the continuing effects of war financing can be avoided and the country will emerge with its strength impaired to the very minimum degree.

New Life Insurance Policies Contain War Restrictions

Life insurance policies in force in Canada are not affected by the outbreak of war. The conditions of the contract will stand. Most of these policies are entirely free of war restrictions.

New policies to be issued, however, will be subject to certain restrictions. New term policies are not being sold for the time being.

According to an official statement issued by R. Leighton Foster, general counsel of the Canadian Life Insurance Officers Association, the life companies will issue policies on the lives of those on military or naval service in Canada or its territorial waters without restriction or extra premium. For the time being, however, risks on individuals on actual flying service in the air force are not being accepted. It may be noted in this connection that in peace time the companies issue insurance on those actually engaged in flying only with considerable restrictions.

New insurance on those engaging in active war service outside Canada will be subject to an extra premium. It is understood that this premium will probably be about $75 a year. In the last war an extra premium of $50 was charged at the start but this increased later to $150. Special restrictions will probably be inserted in policies with regard to civilians who leave Canada for an actual theatre of war. They also will probably be asked for an extra premium.

Double indemnity and total disability clauses in many existing policies, it is pointed out, are usually discontinued automatically when the insured goes on active service.

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Expedionary Force Omitted

(Continued from page 1)

far Quebec has come along with the rest of the country. There has been no disagreement in cabinet. The favorable development of the Quebec situation was covered in The Financial Post last week.

Psychological Change

Since then, however, those best informed of French-Canadian opinion have realized that the meaning of these early signs of consent and cooperation may easily be exaggerated. Quebec, it is agreed, is going through a psychological adjustment.

French Canada, as stated last week, is not opposed to Canada's participation in the war, under certain conditions. The French Canadians hate Hitlerism just as intensely as their fellow Canadians in the other provinces.

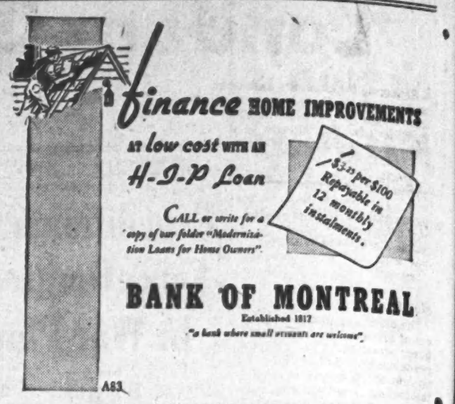
They will raise no objection to Canadian expenditures on behalf of Britain. There is no objection to the recruiting of a gigantic air force for service abroad. They would not object if Canadians volunteered for overseas service and proceeded to fight either in the British or French armies. But coupled with the deepest antagonism to conscription is a feeling that Canada must not have an expeditionary force, an army corps, serving in Europe.

Fear of Separate Corps

Perhaps this feeling is based, intuitively, on the fear that a Canadian corps would mean, ultimately, conscription, just as a national government might mean conscription.

Consideration for French-Canadian opinion has been constantly in the minds of ministers at Ottawa. There is, generally, satisfaction that no opposition has yet been offered by French-Canadian ministers to Canada's war preparations.

At the same time the English speaking provinces may not be content with the apparently slow tempo of policy or indefinite delay of an offer of military aid, of an expeditionary force.



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War's Inflationary Prospect Affects Sterling Exchange

Declaration of war by the United Kingdom with all its inflationary possibilities brought the pound sterling down to within few cents of $4 at New York this week. There was a heavy transfer of sterling into United States dollars, evidently in anticipation of inflation of the United Kingdom currency to meet war expenditures.

Prospects that heavy imports of war supplies in the near future will also bring deterioration in the trade position were an additional factor. It was announced from London that a ban would be placed on the export of bank notes, gold, securities, and foreign exchange except with the permission of the British treasury.

At the lower levels, it was stated there were evidences of support from the British Equalization Fund and it is expected that an announcement will be made shortly of the level at which the pound will be pegged. In the last war it was around $4.76. This time it is believed it will be somewhat lower though above the low point reached at the beginning of this week.

Canadian Dollar Drops

The Canadian dollar fell in sympathy with sterling, going to a discount at one time of around 9% under the United States currency. This made the quotation on the pound at Toronto and Montreal in the neighborhood of $4.43 to $4.45.

Just what the relation will be between the pound and the Canadian dollar when stabilization comes is a matter of speculation. Bankers point out that the Canadian trade position is such that the present discount of 8% to 9% under the dollar of the United States is not justified. Wild fluctuations at times have been interpreted by bankers as meaning that there has been no attempt to control the Canadian dollar.

It is felt that Canadian currency will eventually take a position about midway between the pound and the United States dollar, which will facilitate it acting as an intermediary between the two major currencies.

Talk of devaluation of the United States dollar at the present is regarded as premature as there is no need of such action to protect Britain and her allies and that would be the main reason for Roosevelt making any move toward devaluation just now.

Toronto Exchange Lifts Short Sale Restrictions

To permit Canadian shareholders the same privilege as American, the prohibition of short selling on the Toronto Stock Exchange with respect to stocks interlisted with the New York Stock Exchange and the New York Curb Market was rescinded from the opening of the Toronto exchange on Sept. 7. The stocks involved number approximately 30 and include some of the leading Canadian securities.

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Lon

Reflecting the thoughts, int and pursuits of Britishers n were dragged into war's mael by Hitler's lust for power, th lowing commentaries by Attic pro tem. London columnist o Financial Post, were written period just preceding outbre war. The observations rep give striking sidelights on th perturbed determination of in the Motherland to grapple the emergencies of war as they can.

Bombers Over London

The other day, happening t out of my window, I experien queer sensation. The windo posite me were full of faces p up into the sky, and at once the feeling, with which we a familiar, that this had hap before. So, in a sense, it had. faces were watching the R bombers manoeuvring over L What they had reminded me a day in 1918, when my att was called in precisely the way to the first German da raid over the West End of L

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* * *

Wonderfully Calm

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Pets really are quite a s problem. It will not be possi take them into any public sh and it would be a callous f which could leave them in an house to fend for themselves. a lady who was wondering wh anyone in the country wou found willing to take care o two dachshunds for her. were both born in this country said anxiously, "and so were parents. They are really E dogs at heart."

* * *

Stormy Petrel

Adalbert Korfanty, who di Warsaw last week, was a s petrel in an age, and from a tory, which have produced He was born a German subje son of working-class parent Gleiwitz in Upper Silesia. B was not reconciled to being a man and he opposed the go ment of the Reich in the yea fore the War, first as a journ and then as the first Polish mem of the Reichstag.

But his greatest activity was come after the war. He was d mined that as much as possi his native province should be porated in the restored Polan first Polish Plebiscite Commis in Upper Silesia he soon ala his own Government as well Allies. But he was prepared to at nothing, and when it was r ed that the Allies meant to only a small part of the dis province to Poland, he estab himself as a virtual dictat Beuthen, guarded in the Lo Hotel by a formidable arm bodyguards.

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He was a tall, heavily buil of a man with a violent tempe an obstinacy which were frequ the enemies of his judgment. during the one great episode life he acted in a way to make those who most hated him a his courage and his confidenc

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London Calling — by Atticus II

Leading War Personalities Are Spotlighted in Atticus' Penetrating Appraisals of Public Men

Reflecting the thoughts, interests and pursuits of Britishers as they were dragged into war's maelstrom by Hitler's lust for power, the following commentaries by Atticus II, pro tem. London columnist of The Financial Post, were written in the period just preceding outbreak of war. The observations reported give striking sidelights on the unperturbed determination of those in the Motherland to grapple with the emergencies of war as best they can.

Bombers Over London

The other day, happening to look out of my window, I experienced a queer sensation. The windows opposite me were full of faces peering up into the sky, and at once I had the feeling, with which we are all familiar, that this had happened before. So, in a sense, it had. Those faces were watching the French bombers manoeuvring over London. What they had reminded me of was a day in 1918, when my attention was called in precisely the same way to the first German daylight raid over the West End of London.

I must add that the display the other day was much the more impressive of the two. The German aeroplanes in 1918 looked remote, small, harmless, even peaceful. Not so the bombers and fighters of our ally.

• • •

Wonderfully Calm

The community as a whole has been wonderfully calm. Most people, I fancy, have had too much to think of to worry very greatly. The imminence of war presented a hundred and one problems, to each of which practical attention must be given. They range from the proper bestowal of the very old and the very young, through the procuring of materials for the darkening of windows, to the disposal of pets of all kinds.

Pets really are quite a serious problem. It will not be possible to take them into any public shelter, and it would be a callous family which could leave them in an empty house to fend for themselves. I met a lady who was wondering whether anyone in the country would be found willing to take care of her two dachshunds for her. "They were both born in this country," she said anxiously, "and so were their parents. They are really **English** dogs at heart."

• • •

Stormy Petrel

Adalbert Korfanty, who died in Warsaw last week, was a stormy petrel in an age, and from a territory, which have produced many. He was born a German subject, the son of working-class parents, at Gleiwitz in Upper Silesia. But he was not reconciled to being a German and he opposed the government of the Reich in the years before the War, first as a journalist and then as the first Polish member of the Reichstag.

But his greatest activity was to come after the war. He was determined that as much as possible of his native province should be incorporated in the restored Poland. At first Polish Plebiscite Commissioner in Upper Silesia he soon alarmed his own Government as well as the Allies. But he was prepared to stick at nothing, and when it was rumored that the Allies meant to give only a small part of the disputed province to Poland, he established himself as a virtual dictator in Beuthen, guarded in the Lomnitz Hotel by a formidable army of bodyguards.

When the work to which he had set his hand was accomplished, he was found to be less well fitted for the staider work of peacetime. Partly owing to the enmity of Pilsudski, who refused to accept him as Prime Minister on any conditions, he played little part in Polish politics except as a disturbing influence. He was frequently at odds with the Government and in 1930 he was imprisoned in a fortress. He escaped thence and lived in exile until this summer, when he returned home to die.

He was a tall, heavily built bull of a man with a violent temper and an obstinacy which were frequently the enemies of his judgment. But during the one great episode of his life he acted in a way to make even those who most hated him admire his courage and his confidence.

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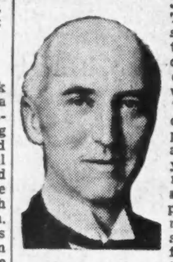
The other day I read in a library volume of Hansard no less than three pages of sustained vituperation uttered by Mr. Lloyd George in honor of Sir John Simon. The wells of scorn, contempt, irony, derision and denunciation were drained to the last drop. Many people have attacked him, yet Sir John remains like a white-topped mountain, not even showing the footmarks of those who set out to conquer him.



SIR JOHN SIMON

Is he immune to praise or blame? Is some human element missing in this tall luminary of the law—now a statesman — whose brain embraces every problem without fatigue and whose body is the unquestioning slave of his mind? There is a formality about Sir John Simon which keeps the world at a distance and one suspects that there are times when he would gladly open the gates if he but knew where the key could be found. It sounds trite to say that a man cannot be judged until seen in his own home but that is particularly true of the Chancellor. There, and on the golf course, one finds a simplicity and a gentleness sharply at variance with the popular conception of the man of ice whose heart beats only to the rhythm of personal ambition.

• • •

If our new Ambassador to Washington, the Marquess of Lothian, fails to attract as much attention as Mr. Joseph Kennedy does here it will be due to the Washington background rather than any failings of his own. The Americans will like Lord Lothian.

MARQUESS OF LOTHIAN

Lord Lothian started his public career, like so many other famous men, on the staff of Lord Milner in South Africa. He held various political posts and was an unusually successful Under-Secretary to the India Office. Later he dabbled in newspapers when Mr. Lloyd George endeavored to create a second empire in Fleet Street. He succeeded his cousin and will be succeeded by a cousin—unless, of course, our 57-year-old bachelor ambassador plays with fate and remains over there.

• • •

I have watched our Secretary for War during a friendship of nearly 20 years. There have been times when I have doubted him but he has never shared those doubts.

HORE-BELISHA

My opinion is that in his earlier political life Leslie Hore-Belisha would have liked the palm without the dust but that now he shirks no burden and relishes the magnitude of his tasks.

• • •

Just before General Sir Edmund Ironside, (new chief of the Imperial General Staff) was sent to command Gibraltar I sat next to him at a reunion dinner of veterans. He impressed me then, as he has always done, as a man of guile in war and an honorable simplicity in peace.

When giant Sir Edmund was ordered to Gibraltar it seemed to many of us that his star had set.

Most of the men now in leading roles in the great conflict between the democracies and Naziism, have been spotlighted in recent months by the penetrating character appraisals of Atticus, The Financial Post's famous London columnist. Particularly timely at this time are the following passages from his observations of some of the chief British and other actors on the international stage of war and peace.

The Belisha broom had reached high. Gibraltar was not a post where future field marshals proved their genius. Instead it was traditionally a halfway house where a distinguished soldier could exercise his gifts for organization without undue strain. We did not realize that Gibraltar had become a vital problem in the new Mediterranean orientation. The Spanish war and the full-blooded emergence of Italy as an axis power demanded drastic new measures in keeping the Rock impregnable.

According to report, General Ironside has done his job well, as he always does. Sir Edmund speaks 16 languages (according to popular legend) and even should be falter with one of them his mighty stature of six-feet-four and his booming voice convey a meaning all their own.

• • •

Ambassador Joseph Kennedy does not orate, he talks to his hearers. Next to the French, Americans have the greatest gift for creating thundering phrases that go crashing down the slopes of history like an escaped boulder.

JOSEPH KENNEDY

Mr. Kennedy does not follow these masters. Unlike a certain British Cabinet Minister who always addresses a single person as if he is a public meeting, the American Ambassador addresses a public meeting as if it is one person. He is friendly, human, shrewd, idealistic and amusing.

Ambassador Kennedy uses exactly the same style on the public platform as in the dressing room of the golf club.

• • •

No one who knows Anthony Eden will accuse him of seeking the limelight or courting publicity. It is not his doing or his desire that he has been seized on by the cinema-gutted public until his personality has actually eclipsed the stars of Hollywood in popularity and cerebral excitement. Mr. Eden's character is straightforward and enriched by a genuine simplicity of spirit. He has refused the temptation to dramatize himself.

ANTHONY EDEN

Mr. Eden's personality is more vivid than his mind. Intellectually he seldom goes beyond exposition. That may be the result of having had to weigh his words so carefully during his regime at the Foreign Office.

• • •

Perhaps a few of our former Foreign Secretaries might contend that it is not easy to fail in that office when there is a Prime Minister ready to assume complete responsibility for everything. Further it could be argued that a minister who does not have to face the fierce scrutiny of the House of Commons can hide his defects, should he be the unfortunate possessor of such things. Whatever the weight of such logic may be Lord Halifax always dressed in the most sombre and almost funereal black clothes, makes his way from Downing Street to the House and back again, seemingly unaware that he is one of the most discussed men of our time.

LORD HALIFAX

• • •

Pope Pius XII is only 63 years of age and the slightness of his stature suggests that he will have a long life. I am convinced, also that his tenure of office will prove a source of inspiration to all that is just and merciful and of good repute. One of his favorite phrases is "the human family" and his conception of it is universal. As a man he does not hesitate to range himself against the forces of tyranny yet he can feel pity simultaneously for the tyrant and his victim. When he spoke by radio to the outside world he used the words:

"The first message from a successor of St. Peter cannot be anything else but a message of peace, of that peace with which the Almighty rewards those who beseech, desire and prepare for peace with a pure heart."

POPE PIUS

No priest or Vatican official wrote those words for him. They are absolutely of the texture of his spirit. Those of us who are not of the Catholic faith yet belong to the human family have reason to rejoice with that Church today.

Expect Trade Will Expand

(Continued from page 1)

ectly alter this movement of goods. Another $115.6 millions was from Britain and while this trade will not be affected by any enemy power, it is thought that so far as textiles and machinery and similar articles go, there will be a sharp falling away in sales to Canada.

No Shortage Feared

A certain amount of the import trade, approximately, $15 millions is with countries either now at war with us or under German domination and, on this account, will disappear. Another $12 millions of imports come from Norway, Sweden, Belgium, Holland and similar countries. Undoubtedly it will be seriously affected by hostilities.

But no fears are expressed at Ottawa that Canada will be unable to buy any materials she may require from abroad. The source of supply may be changed, but there will be no shortage on that account.

Canada's exports last fiscal year, at $969 millions will almost certainly increase this year although marked changes in the character of the goods exported will begin to become noticeable at once. Our greatest customers are the United States ($375,939,000) and the United Kingdom ($325,465,000). Their positions will be reversed, it is believed, before the year is out.

Exports which are blotted out by the war include almost $18 millions direct to Germany—largely nickel and other war materials—and lesser amounts to Poland and Czecho-Slovakia. Likewise some $40 millions of exports to the Baltic countries, Holland and Belgium, are thought certain to undergo radical revision.

Effect of Blockade

Apart from the impact of war upon Canada's trade, will be the British blockade which has been clamped upon Germany. It is known here that Britain means to enforce it with all possible severity and efficiency.

Neutral countries in a position to re-ship goods to Germany will be rationed at the outset. It will be made impossible for them to purchase from Canada and re-ship to the enemy. And in commodities of which Canada's supplies are limited the preference will go to Britain.

Greater Production

In addition to these facts, it is expected that Canadian production itself will begin at once to undergo deep changes. As the country gears itself to war, production will tend to expand in war essentials and to diminish in non-war commodities.

Therefore, while it is regarded as impossible to chart with confidence the trend of Canadian trade in war, it is believed that the general tendency will be toward expansion. At first this expansion may be slow but assuming the war goes into 1940 or beyond, it will result in the greatest outbound movement of goods in the country's history..

Use of Substitutes

In the meantime businessmen are not worrying very much about the goods they will no longer be able to import from Germany.

The experience of the last war showed that in most cases these could either be obtained elsewhere or replaced by substitutes. In the early months of the war, the textile industry was anxious because it could not obtain German dyes. Nevertheless, in September, 1914, the ten mills of the Dominion Textile Co. resumed operations.

The steel trade, with plants at Sault Ste. Marie, Hamilton, Sydney and other points were at first upset, because of inability to get ferro-manganese from Germany but this was overcome and works were soon busy on orders from the allies. Early in September, the E. D. Smith Co., of Winona, Ont., reported full steam ahead in both employment and production.

Chemical trades which had been getting potash from Germany, electrical industries using platinum, and manufacturers of photographic materials using oxalic acid were eventually able to carry on.

Employment Maintained

While wages and salaries were cut in some quarters along with reduced employment, as the weeks went on, it was felt to be a patriotic duty to keep as many men as possible working. Within a year's time active operations became a necessity.

The agricultural industry did well throughout the war.

Canadian importers do not expect any serious trouble, on this occasion. Firms importing sardines from Norway, olives and dates from the Mediterranean do not expect that there will be any serious interruption to their operations although prices are likely to be higher owing to higher cost of transportation including increased insurance rates, etc.

Exporters fel that the prospects for their goods depend on whether their products are necessities or luxuries. Fine instruments and machinery which are not made here will probably be added to the list of Canadian products.

Saw German World Menace With Nazi Rise Years Ago

Ruthless German defiance of the democratic world is no new development. Six years ago this summer, a staff writer of The Financial Post was in Europe. In Paris he interviewed leading French officials and asked their opinion of the then rising Nazi Government in Germany. They warned him of the danger that now confronts Britain and France. Hitler and his advisers, they said bluntly were a bunch of gangsters.

"If you put Al Capone and a group of Chicago gangsters in the White House and let them rule the country with sawed-off shotguns you would have a parallel for the situation in Germany," they told The Financial Post in July, 1933.

The Nazi Government, according to the French spokesmen was not considered as a representative government of the German people. "The men around Hitler," The Post was told, "are in a number of cases the exact counterparts of the men who have run the rum-running racket in the United States. We have reports on a number of them. These reports show that they lead the most immoral lives and are men of the basest character. Such men will stop at nothing. They have no sense of responsibility; of moral obligation to the nation. Their ambitions are personal."

It was suggested that perhaps the apparent apathy of moderate opinion in Germany resulted from disappointment and disillusionment concerning the Treaty of Versailles.

"But Germany is wrong to blame her economic troubles entirely upon the Treaty of Versailles," argued the French. "The fundamental economic problem in Germany is over-population which means lack of opportunity. But we had the same problem in France and we have solved it. We have been building up our present industries like wine-growing and wheat-raising. Our industries are small industries using large amounts of hand labor. Our tariff helps to raise the standard of the country workers rather than to build up large industries."

"In Germany," The Post was told, "they have aped the United States and Canada. Forgetting that German opportunities are not like those existing in the new countries of America, they have built huge factories and equipped them with the most modern machinery to replace hand labor."

Then came these prophetic words:

"The excess population of Germany is a terrible threat to the world so long as the Government is in the control of some of the men around Hitler. They are men of consummate ambition and brutal disregard of the sacredness of private happiness or human life. Germany has at least two million excess men. What would be more easy than to go to war against the rest of Europe in a desperate gamble for power? Even if Germany lost 2,000,000 men and lost a great war she would not be much worse off than she is now. We are frankly afraid that if the Nazi leaders find their power slipping they will go to war to retain their power and influence over the people and in the hope that they will create permanent positions and world power for themselves."

The article appeared in July, 1933, just after Hitler seized power.

Finances Hold Steady in B. C. Municipalities

From Our Own Correspondent

VANCOUVER.—Disbursements of British Columbia cities, districts and villages, apart from those of Vancouver, were slightly in excess of revenue last year, according to figures announced by the department of municipalities.

Total expenditures were $22,124,547 and collections, $21,906,844. The report shows that tax values for 1939 are slightly less than those of 1938, but the tax rate is upward.

Only two cities, Nelson and Victoria, reduced the mill rate during the past year.

Collections of taxes continue to improve. Unused borrowing powers in British Columbia municipalities amount to approximately $42 millions.

"The general financial situation among municipalities of the province is much the same as a year ago," reports Deputy Minister E. H. Bridgman. "There is evidence of continued economy in administration. There have been no further defaults, nor has any municipality been placed under a commissioner."

Sidney Roofing Plans Rebuild Burnt Plant

From Our Own Correspondent

MONTREAL.—Sidney Roofing & Paper Co., Victoria, is planning to undertake the rebuilding of the portion of its groundwood mill recently destroyed by fire. The loss was reported at over $25,000, including equipment.

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Investment Trends

War Fears Succeeded By Rush To Buy Stocks

Wide Gains in War Favorites Follow Ending Period of Tension—Markets Take Short Cut to Lessons of 1914

Far from being thrown into a panic at the actual outbreak of war between Germany, Great Britain and France, stock markets on this continent interpreted this in the most favorable possible light.

In a way the actual beginning of the war came at a favorable moment. On Saturday, when an actual declaration of war appeared inevitable, the strong upsurge got under way. When the start of the war on Sunday was followed by the Labor Day holiday, the first shock was over and the response was spectacular.

Early selections of stocks to buy as "war babies" showed little discrimination. The steels, base metals, machinery, pulp and paper groups perhaps stood out. On the other hand, U. S. and Canadian markets were alike in leaving bank stocks, liquor and soft drink securities, and utilities alone. These, as pointed out in The Financial Post in recent articles, are less likely to come through a war period unscathed.

If a war means that general business activity extends to bring widespread prosperity, then even these early laggards will probably be adjusted in price more nearly in line with improved prospects. But for one reason or another they seem less desirable to stock buyers at present.

Action such as has been seen in the past few days made it entirely unnecessary for stock exchanges to place in effect the protective measures, such as pegged prices, that were ready for use. The only restriction on Canadian markets was a prohibition of short selling which was placed in effect in the few days prior to the actual outbreak of war.

* * *

Signal of Confidence

Stock markets appear to be trying to make absolutely clear that as far as business volume and price levels are concerned, there is nothing to fear in the near future. War demands will take care of unused productive capacity, it is thought. Unemployment will vanish under the twofold demand of the armed forces and expanding industry.

Farm conditions will be immeasurably benefitted by the rising tendencies already so evident in such key commodities as wheat, livestock and dressed meats, sugar, cotton, and others. Overnight, Canada's terrific problem of heavy losses under minimum prices for wheat is eliminated.

In other words, the stock market appears to have taken a short cut this time to matters which took many months to make clear 25 years ago. At that time, the first reaction to outbreak of war was a panic and rush for liquidity at any cost. This time preparations, financial, economic and psychological, for a war appear to have been so thorough that the first reaction is an aggressive one on the part of investors. The inflationary aspects of a wartime economy have been so much publicized and are so well known that there was a rush to buy rather than to sell. Finally, pressure of heavy European liquidation was eliminated by previous control measurers.

* * *

Trend Confirmed

Followers of stock market theories should find abundant reason for renewed confidence in the decisive way in which industrial stocks were able to penetrate through the July highs which stopped the advance about six weeks ago. By scoring a clear gain of 10 points in one day, the Dow-Jones industrial average rose well above the 144.71 level of July 22. The rail average up to Sept. 5 had not yet shown ability to penetrate through the levels where the July rise was stopped.

Thus, it seems that stocks are close to giving a renewed signal that the trend is upward. Assuming that this is so, it would also suggest that the initial burst of strength had not discounted all the possible gains. The London stock exchange is remaining closed until Sept. 7.

* * *

Disturbances Possible

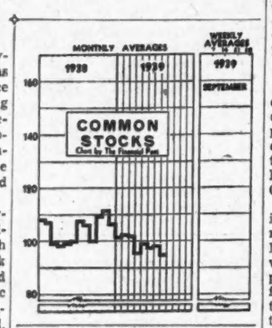
It is too much to expect that reactions will not be experienced in the months to come. News from the war zone may have much to do with stock market action. One or more reverses for the British and French forces could change optimistic sentiment to one of fear. The effect on the stock market could be unsettling, even if only temporary.

Perhaps even more to be remembered is the fact that a war can produce many surprises. Effect on individual industries may not be quite what was calculated. Special taxes or restrictions on profits may offset substantial gains in volume of production. Early estimates of companies that will benefit most from war demands may prove to have been wrong.

This emphasizes again the necessity of continued watchfulness. War markets appear likely to resemble inflation markets. Shifts in direction can come with little warning and disconcerting range of movement.

In the final analysis, it seems wise to lay the emphasis for an investment programme on such groups as agricultural equipment, non-ferrous metals, petroleum producers, steel companies and those fabricating steel equipment, machinery, meat packers and probably automotive. Many of these companies will have plants that are already equipped to make war munitions or can with comparative ease be changed to this type of production. Others produce the raw materials from which war equipment is made; others depend on the probable demand from agriculture or food processing. This may not be a complete list but it seems generally accepted as a guide.

And it is still wise to lay stress on the quality of the investment itself. A company in a strong position is much better prepared to weather whatever may happen than is one that has not demonstrated this quality. It is true that it may be possible to show greater appreciation in values through the more speculative stocks. But the risks are also greater and when the reaction does come, as it always has, the chances of loss are much greater.



National Light Reports Increase in Earnings

National Light & Power Co. reports an increase in power output and earnings in the seven months period ended July 31 over the same period in 1938.

Operating earnings increased to $335,575 from $307,592. Net earnings increased to $193,795 from $172,759. After larger allowance for depreciation and higher bond interest charges, net profit, before allowance for income taxes, increase to $66,468 from $51,386 in the seven months period of 1938.

EARNINGS STATEMENT
Seven Months Ended July 31

	1939	1938
	$	$
Oper. earnings	335,575	307,592
Less: Oper. exps.	146,441	137,356
Net oper. revenue	189,134	170,236
Add: Misc. inc.	4,661	2,523
Net earnings	193,795	172,759
Less: Depreciation	52,619	49,656
Bond interest	74,688	72,317
Net profit*	66,488	51,386
Times Bond Interest Earned:		
Before deprec.	2.59	2.39
After deprec.	1.89	1.71
Output in kw.h.	15,929,169	13,916,026

* Before allowance for income tax.

Rogers-Majestic Corp. Gets Capital Changes

Supplementary letters patent, dated Aug. 9, 1939, have been issued to Rogers-Majestic Corp. confirming the changes in the company's capital stock voted by shareholders at recent meetings.

At the special meetings last July shareholders voted in favor of granting one vote per share to the class A stock and five votes per share to the class B. The latter had formerly held entire voting control of the company.

Municipal Finance

Toronto reports a net general and education debt of $63,764,868 in its annual financial report for the year ended Dec. 31, 1938. Assessed value of rateable property for school purposes was $967,167,858, and for general purposes, $895,512,159.

* * *

Regina recently borrowed $100,000 from the sinking fund for relief purposes. Total amount which the city has taken from the sinking fund for direct relief now amounts to $1,731,000. All of this has been borrowed from the sinking fund and bonds for equal amounts deposited in the fund.

* * *

Hamilton assessment commissioner has announced an increase in taxable property of $1,152,487, making total assessment for 1940 taxes, more than $165.7 millions.

* * *

Montreal spent $17,577,577 in 1938 for administration and other departmental expenses.

Significant Investors' Index Numbers

1926 = 100

No. of Securities	Mach. and equip 8	Pulp and paper 7	Milling 3	Oils 4	Textiles and clothing 10	Food and allied prod. 12	Beverages 7	Bldg. mater. 15	Power and traction 15	Banks 8	Total utilities 19	Total co's 93
1929-38:*												
High	432.5	113.4	275.4	423.5	113.5	197.8	264.6	281.1	197.6	131.7	166.0	198.3
Low	39.2	3.0	37.7	87.7	30.8	78.8	33.8	44.3	47.1	63.1	36.9	43.3
1939:												
Jan.	129.4	16.9	79.1	172.5	52.9	172.9	126.9	153.3	57.5	85.2	42.7	102.9
Feb.	129.4	16.4	77.6	175.9	54.3	175.3	130.4	153.6	58.2	85.3	42.9	104.1
Mar.	126.6	15.1	79.9	175.9	57.2	172.5	127.6	132.9	62.0	85.1	44.4	103.7
Apr.	111.1	11.5	71.4	162.9	53.1	160.2	116.9	119.3	58.9	83.7	41.9	96.2
May	112.5	12.0	78.9	170.2	55.0	176.3	120.4	124.6	60.8	84.7	43.2	99.2
June	114.2	12.4	77.4	153.2	56.2	179.2	124.7	128.8	60.8	85.3	43.7	97.6
July	118.0	12.7	75.0	154.0	59.8	182.1	124.8	129.5	59.2	85.0	42.7	97.3
Weekly Figures:												
Aug. 3	116.1	12.9	74.7	155.9	61.9	183.3	128.3	129.7	59.6	85.1	42.9	98.6
Aug. 10	116.4	12.5	76.7	154.6	61.4	183.2	124.8	127.7	59.0	85.2	42.3	97.5
Aug. 17	115.4	12.1	77.5	154.1	60.9	184.1	122.6	125.7	58.8	85.3	42.0	97.1
Aug. 24	105.1	10.2	75.8	144.7	58.9	179.5	114.1	117.1	55.9	84.6	40.2	92.2
Aug. 31	104.7	10.0	74.9	143.1	59.2	177.0	114.7	119.1	55.2	83.0	39.9	92.3

*High and low for year from 1929 to 1938 inclusive are based on weekly figures compiled from figures issued by Dominion Bureau of Statistics.

Toronto Stock Exchange Index

	20 Indus.	20 Golds	10 B.M.	15 W.O.
Sept. 5	116.01	108.56	104.12	29.05
Sept. 4	—Holiday—			
Sept. 2	104.38	104.38	89.76	21.36
Sept. 1	100.04	102.29	85.43	21.07
Aug. 31	102.87	100.56	83.44	23.47
Aug. 30	105.18	112.76	84.64	24.21
Month ago	112.33	122.27	90.17	28.13
Year ago	118.97	122.08	89.92	31.90
High, 1938	125.92	128.95	101.27	45.00
Low, 1939	97.75	103.11	79.59	21.07

Montreal Stock Exchange Averages

	10 Util.	20 Ind.	30 Cbd.	10 Pprs.	15 Golds
Sept. 5	59.4	81.2	74.0	94.70	80.38
Sept. 4	—Holiday—				
Sept. 2	59.5	70.1	66.6	80.89	95.27
Sept. 1	59.7	85.7	63.8	53.65	85.64
Aug. 31	62.7	86.2	65.0	55.06	103.11
Aug. 30	63.1	87.6	66.1	56.79	105.25
Month ago	66.2	72.9	70.6	70.63	111.64
Year ago	65.6	80.7	75.7	120.38	128.60
High, 1938	70.1	85.0	79.1	119.77	126.48
Low, 1939	59.4	63.2	62.7	50.78	85.64

Effect of War on Industries Seen Varied But Decisive

Curb on Exports Likely Offset by Other Demand

Effect of war on major industries in Canada and on chief concerns in those industries will vary widely, survey by The Financial Post indicates. But favorable or otherwise, effects will be pronounced in most cases.

Outlook for Canadian farm implement exports, and therefore for the companies engaged in this business, is largely dependent on British and French ability to keep the sea lanes open, according to officials of one of the larger companies. It is pointed out that in the last war, demand in France for better farm implements increased as the shortage of men became more apparent. What happens this time can hardly be known yet but, barring an actual interuption because of an invasion, there seems no reason to expect that similar demand will not arise.

It is, of course, recognized that German requirements and those of other countries in which fighting is taking place are practically eliminated.

In the Argentine, an important export market for Canadian manufacturers, it is expected that rising prices for farm products will mean a continued good demand for machines. Here again adequate shipping is a point to consider.

Effect of Exchange

So far as the United States is concerned, there should not be any change except such as may be imposed by fluctuations in foreign exchange rates. With the current trend for discount on Canadian dollars at New York, it is possible that Canadian exporters will be aided.

The two chief companies in this industry interested in the export markets are Cockshutt Plow Co. and Massey-Harris Co., so far as the investor is concerned. The latter company has a subsidiary operating a factory in Germany. It is obvious that this plant will be a loss but, on the other hand, it has not been possible for some years to get any earnings out of Germany. For this reason, and because the critical situation has been recognized for some time, it is understood that what is considered adequate provision has been made.

Bigger Domestic Sales

Any loss of export markets that may be suffered by Canadian farm implement manufacturers can easily be offset by greater sales in Canada and the United States. If the war lasts and the present trend toward higher prices for farm produce continues, Canadian farmers will get a greatly increased purchasing power. A goodly part of this will go for newer and better equipment. This movement may be hastened by shortage of labor and likely higher average wages. Higher prices have come too late to aid the major selling seasons this year, but will help collections. Continuation of present trends until spring should mean important gains next year.

Implement companies have plants that are not used nearly to capacity at present. This unused capacity could probably be converted to the manufacture of certain classes of war equipment. Company officials tell The Financial Post, however, that whether or not they would be willing to start the manufacture of munitions would largely depend on the attitude of the Government. They are not willing to make arms on the basis of small orders that would not permit some return on their costs. Of course, large scale British buying could quickly change this reluctance.

In Steel Industry

Dominion Foundries & Steel officials tell The Financial Post that they have not noted any trouble yet in obtaining an adequate supply of tin. This metal has to be imported, largely from Malaya and the East Indies. Because of distance it is necessary to contract for supplies for several months in advance. Output of tin is also under the rigid control of a cartel which has stabilized prices and supplies.

Interruptions and difficulties in transportation are feared more seriously than inability to buy.

There are at present two producers of tin plate in Canada. Algoma Steel Corp. placed a new plant in operation this year, while Dominion Foundries & Steel has been active for the past four years.

An important volume of Canada's tin plate requirements comes from British producers at present. It is thought possible that this source of supply will be interrupted because of wartime demands on the British steel industry. This would give Canadian producers an opportunity to capture a larger share of the domestic market which might easily be made even larger by demands for canned foods to ship overseas.

Operating at Capacity

So far as Dominion Foundries is concerned, the company's plant is already operating at capacity and could not handle any additional demand. Work is now under way, however, on a $500,000 addition to the plant.

Algoma Steel has a contract with Continental Can to supply approximately 70% of the latter company's needs for tin plate in Canada for five years. This leaves additional capacity for sale and it is quite possible that new-found demand may bring capacity operations to this plant as well.

Rubber Prices Jump

Rubber manufacturers are not at all pleased with the indicated probable effect of the war on their operations. After holding around 16 cents a pound for over a year, crude rubber moved up to 18.90 cents a pound in New York on Sept. 1 and by Sept. 5 was up to 23 cents a pound. Obviously, this does not improve matters any so far as such companies as Goodyear Tire & Rubber Co. of Canada, Dunlop Tire & Rubber Goods Co., Dominion Rubber Co. and others are concerned.

Company officials tell The Financial Post that the rapid rise may be partly due to speculation and that there is quite a likelihood that the upward move will not last at the rate of the past week. They say that there is some chance of interruption of supplies through transportation difficulties and that supplies will probably be routed via the Pacific rather than the Atlantic. One trouble of all importers of raw materials is that insurance and freight rates are likely to rise substantially.

Chief other raw material of the rubber industry is cotton. This comes from the United States and supplies are not likely to be hard to get, but the current tendency seems to be toward higher prices.

War Demand

As for increased demand as the result of the war, rubber manufacturers seem to feel that the best chance for this is through orders for automotive equipment. The automobile industry is the largest single user of rubber products under peacetime conditions.

Stocks of crude rubber had fallen to the estimated equivalent of 4.4 months supply as at the end of last July and based on average consumption for the preceding 12 months. In the United States, by far the largest user, stocks were equivalent to less than a four months supply. Normal peace-time stocks are said to be the equivalent of a six months supply. Thus rubber starts the war period with an actual shortage. Supplies are largely controlled by British and Dutch in the East Indies.

Automobile Industry

Ford Motor Co. of Canada last year exported 54% of its output of cars and trucks. By far the most of this export trade was to other parts of the British Empire and thus is not likely to be subjected to elimination. Transportation difficulties may limit, or delay, shipments.

Increased demand for this company's products because of war could come from two sources. In the first place, better conditions in Canada might mean that more new cars and trucks would be bought, particularly by farmers. In the second place, it is possible that continued enforcement of U. S. neutrality laws as at present worded might mean that British or French military needs would be switched to Canadian producers. No indication of this has been announced but it seems a logical development.

Investment Notes

International Power—Through an error it was stated in answer to an enquiry on International Power Co. in the last issue of The Financial Post, that the company did not have outstanding a 6% debenture maturing in 1957. This was inaccurate. The company has three forms of debentures; the 6% secured debentures of 1955, 6½% gold debentures of 1957 and 6% gold debentures maturing in the same year.

* * *

Distillers Corp.-Seagrams — Last year this company spent $1,557,451 advertising its products in the American market. The company ranks fourteenth among the largest users of newspaper advertising according to a compilation of the Bureau of Advertising.

Market Opinions

The start of the war and its results have happened so suddenly that available appraisals of the stock market have not been able to give allowance for the spectacular turns of events. Such as are available, however, point to good reasons for expecting strong benefits to U.S. business.

Barron's, New York (The Trader)—"The conclusion must be that despite the unforecastable developments of war, with such immediate collateral effects as the drastic decline in the pound sterling and a reaction in high-grade bond prices, business and profits in the United States are headed for higher planes. . . .

"There is a real risk of companies abnormally benefitted by war being subject to some special type of tax levy . . . If the business revival that has for several months been gathering strength is to be intensified by European war demands, the resultant prosperity will hardly be spread so thin as not to cover representative fields of industrial and merchandising activity.

". . . By all normal interpretations, national consuming power is in process of being heavily increased at a time when stocks on the basis of earning power and by contrast with bond yields are highly attractive."

* * *

Brookmire Counselor, New York—"Having taken action previously to allow for either recovery under armed peace, or for war, the problem now narrows down to sitting tight—adhering to sound procedure irrespective of erratic market fluctuations. Invested positions should be maintained, with emphasis continued on industry groups benefitting from war and inflationary factors. This is a time for calm reasoning and sound judgment. A crisis demands courage but yields rewards."

* * *

New York Times (A. D. Noyes)—"It is quite possible that the particularly violent week end rise in shares of companies which could produce war material was too impulsive. When there is time for discriminating judgment to apply, less will perhaps be heard, as every one did on Friday, of large munitions exports, and more of increasing normal exports to neutral countries whose requirements a belligerent Europe could no longer fill."

McColl Sales Move Ahead

$4.9 Millions Bank Loan Liquidated at Half-year Mark

From Our Own Correspondent

MONTREAL. — Volume of sales handled by McColl-Frontenac Oil Co. for the first six months of the current fiscal year, which ended on July 31, were greater than for the like period of last year, according to an official statement issued by the company. The dollar value of sales was, however, approximately 4% lower, due to the lower prices received for the company's products. At the same time it was announced that earnings were on a slightly better basis than a year ago.

"The financial position of the company as at July 31 is very satisfactory," says the company's statement. "The bank loan, which at the same date last year amounted to $4,985,000 has been eliminated and the company has a substantial cash balance."

No particulars are issued as regards earnings over the past six months and in this respect the company says:

"As explained in the last annual report, your company's present accounting methods have eliminated all interdepartmental profits previously shown, so that it is impossible to give an exact comparison of earnings. After recalculation of last year's earnings, however, on the present basis for purposes of comparison, it is evident that the earnings for the first six months of the current fiscal year are better than for the corresponding period of last year. The improvement in earnings has been made possible by continued reduction of operating and marketing expenses, as well as a reduction in administration, general overhead, and interest charges."

Newfoundland Relief Costs Rise in July

Relief expenditures of the Newfoundland Commission of Government continue to increase. Expenditure on relief in July totalled $101,450, an increase of $18,875 over the same month last year.

Number of persons in receipt of relief in July was 52,500, an increase of 11,063 over July, 1938. Of the total, 40,348 were able-bodied persons and 11,852 were classified as casual sick, aged and infirm.

Increases in the amount expended and the number on relief are reported in 20 of the 24 districts. Those showing decreases were Humber, Ferryland, St. Barbe and Placentia & St. Mary's.

$350,000 Utility Bonds Purchased By Sun Life

The Securities and Exchange Commission has announced that Sun Life Assurance Co. of Canada has purchased $250,000 of 3½% series B bonds of Arkansas-Louisiana Gas Co.

Appraise Fund For War Use At $6 Billions

Accumulation of Gold in Canada and U. S. $2 Billions

TO BUY SUPPLIES

From Our Own Correspondent

OTTAWA. — Publication of the statistical summary of the Bank of Canada for August, together with reliable data published in Great Britain, makes possible an almost exact appraisal of the gold bullion war chest which Great Britain and, to a much lesser extent, France have established in Canada and the United States.

Last week, the total reserves which Britain would be able to muster at New York were estimated at more than $4 billions. In this figure an item of $1 billion in gold was included.

It is now apparent that this estimate is too low and that actually the British Government has accumulated a very large sum in gold on this side of the Atlantic. The total is $2 billion dollars. In addition, France has several hundreds of millions in gold at Ottawa and New York.

Revealing Figures

The statistics now available give a fascinating picture of the precautions taken by Britain to maintain free access to North American markets. Here are the figures on gold transfers to Ottawa. It must be borne in mind that the totals include all foreign gold held by the Bank of Canada but actually by far the greater part of it is British gold, sent here by the British Government.

	(Millions of $)
1936	47.0
1937	20.3
1938	77.7

So that last New Year's Day, there was $145 millions of gold held on foreign account at Ottawa, practically all of it British Government gold. Watch the story unfold from then on:

	(Millions of $)
January	0.5
February	2.1
March	8.6
April	8.1
May	165.2
June	184.3
July (preliminary)	1.0

$60 Millions in August

This is as far as the Bank of Canada statistics take the story. But the financial editor of the Manchester Guardian publishes figures on British gold movements in August up to the nineteenth of the month. In the first nineteen days another $60 millions was transferred to Ottawa.

The present gold holdings here on foreign account, therefore, run to $575 millions. Possibly $200 millions of this is gold belonging to the French Government, certainly not more. And the balance is British gold.

Gold in New York

But in addition to this sum, the British Government has no less than $1.6 billion in gold in the United States. These figures, whose accuracy cannot be in doubt, reveal that all things considered, Britain is really better prepared for war this time—so far as purchasing power on this side of the Atlantic goes—than in 1914.

There are more than $6 billions in the British-Canadian war chest, available for the purchase of war essentials. More than one third of this sum is in bullion. The balance is composed of British owned U. S. securities which are marketable; Canadian owned U. S. securities which are marketable in New York and can quickly be mobilized for Britain's aid; and British-owned Canadian securities which have a ready market south of the line.

North American Elevators Elects Burgess President

At the annual meeting on Aug. 29, C. H. Burgess, Toronto, formerly vice-president and treasurer, was elected president of the company. Joseph Simard, former president, remains as a director. R. A. Campbell, former secretary, has been elected vice-president and secretary-treasurer of the company.

A. E. Spendlove, Winnipeg, and Capt. Thomas Reid are no longer directors of the company.

Pulp and Paper Securities Boom on War Speculation

From Our Own Correspondent

MONTREAL.—War conditions and the resultant vision of full capacity hit the pulp and paper security market this week. The securities of every company in this industry, whether newsprint, fine paper or pulp, quickly reflected the belief of the investor and speculator that the operators would prosper exceedingly under wartime conditions. The gains, in many instances, were spectacular. A reaction may set in when conditions become more stabilized, but in any event it is more than likely that a large proportion, if not all, of the gain recorded will be held.

Interest has been centred in the newsprint group. This is only natural. The investor following is considerably greater than in other branches of the industry—such as fine paper or pulp. Moreover, there was already a very large following in this group; followers who had continued to hold in the face of the declining market. The result was a scarcity of securities, especially bonds, which were bid up sharply.

Activity in the pulp and paper stocks was general right across the board. Trading in Consolidated Paper was particularly heavy, but one and all recorded very substantial price advances. St. Lawrence Paper preferred, for example, moved up 10 points last Monday; Price Bros. jumped 5½ points; St. Lawrence Corp. stocks jumped nearly 50% in value the same day; as also did Fraser Cos. Abitibi preferred and common. Donnacona Paper, Bathurst and others responded quickly to the changeover from a peace to wartime basis and in a few hours recovered the ground lost in the past several months of trading.

Weekly Record of Financing in Canada

SALES BY MUNICIPALITIES, PROVINCIAL AND DOMINION GOVERNMENTS

Municipal—	Date Issued	Sold to	Rate	Due	Amount	Price	Yield
St. Gabriel De Brandon, P.Q.	Aug.	Brune, Jeannotte	4%	25-yr. ser.	$25,000	99.63	4.04%
Trail, B.C.	Aug.	Frank L. Craig	4%	1949	6,100	100	4%
Rimouski, P.Q.	Aug.	Bk. Canadienne Nationale	4%	1954	30,000	97.79	4.28%
Dominion—							
Canada Treasury Bills	Sept.			Dec. 1, '39	25,000,000	99.829	0.69%

Canadian Government, Municipal, Public Utility and Corporation Bonds

Mail enquiries receive prompt attention.

Wood, Gundy & Company
Limited
Toronto, Montreal, London, Eng., Ottawa, Hamilton, Winnipeg, Vancouver, London, Ont.

Candn. Dredge Gets Contracts

Half Million of Business in Canada But Nothing in Jamaica

Canadian Dredge and Dock Co. has been awarded two contracts for a total of approximately $450,000 by the Dominion Government.

The larger of these is for an extension of the rubble mound breakwater at Port Arthur. The amount of this contract is $416,979 and it is said that it will keep a substantial amount of equipment busy for most of the next year. The other contract obtained is one for $33,750 for reclamation work at Royal Military College at Kingston, Ont.

It is understood that the company has also been notified that its tender is the low one on another contract but no details are yet announced.

No Suspension So Far

So far, company officials have received no indication that the outbreak of war will interfere with plans for work in progress or contracted for in Canada. At the time of the last war business was carried on pretty much as usual until the war took a more serious turn in 1917. Then all except the most essential items of public construction were stopped. Whether or not similar action will be taken now has not been determined, but officials are hopeful that no interference with present contracts or plans will be made.

The war has interfered with the company's chances for obtaining further work in Jamaica, however. It will be recalled that last June it was decided to leave equipment which had been working in Jamaica for the previous couple of years in that country in the belief that further contracts could be obtained. Negotiations on large contracts had proceeded favorably until the situation in Europe became menacing. Now it is understood that all further work has been laid over until the outlook is more favorable.

Municipal Bonds

Sept. 5, 1939

			Bid	Asked	
†Halifax	5	1961	106.00	109.00	4.36
Hamilton	5	1950	102.30	104.30	4.50
Montreal	5	1945	96.00	99.00	5.20
Ottawa	4½	1943	101.90	103.90	3.75
†Quebec	5	1959	101.00	104.00	4.69
Saint John	5	1950	102.00	105.00	4.44
†Toronto	4½	1955	98.00	100.00	4.50
†Vancouver	5	1950	95.00	100.00	5.00
Winnipeg	5	1944	98.00	103.00	4.25

†Payable Can. and N.Y.

Investment Trusts

	Bid	Asked
Affiliated Fund	3.64	3.98
Can. Inv. Fund	3.90	4.30
Can. Int. Tr., modified	4.25	5.50

International Util. Corp. Acquires New Subsidiary

International Utilities Corp., through its subsidiary, General Water, Gas & Electric Co., has acquired all the issued and outstanding common stock of California Water Service Corp., consisting of 24,142 shares of $100 par value. The shares were purchased for $3.2 millions.

California Water Service Co. supplies water at retail to 9 communities in California with an estimated population of 362,000.

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Public Utility
and
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Executive Available

THE SERVICES OF A CAPABLE A... active man, experienced in sa... general management, advertising, accou... ing, wholesale, retail and mail or... merchandising. Available for e... engagement. Age 45, Canadian, Protest... knowledge of French, located in Montr... Able to assume responsibilities, take c... of details, adaptable to employer's id... Moderate salary acceptable with opp... tunity for advancement. Box 188, ... Financial Post, Toronto.

Position Wanted

PRODUCTION MANAGER IN PAP... Mill at present engaged desires cha... for better opportunities, would consider ... association with manufacturer or conver... where a knowledge of paper would be ... some value, paper mills not except... broad practical experience and intim... knowledge of office routine and claims ... vestigator. Will arrange direct referen... and interview if desired. Box No. 149, ... Financial Post, Toronto, Ont.

Manager Wants Position

EXPERIENCED IN SUPERVISIN... gentleman's estate including fa... operations, breeding and recording ... stock, building and other construct... work, care of lawns and gardens, used ... machinery, Hydro, etc. Good gener... experience, used to carrying heavy resp... sibility. Canadian, age 45, married, ... smoker, non drinker, want steady po... tion, describe your position and sal... in first letter. Address Box 184, ... Financial Post, Toronto, Ont.

Wanted

PARTY OR PARTIES WITH $10,000 ... finance selling organization for rub... article patented in Canada, U. S. pat... pending, plans protected by U. S. co... right. Apply Box 190, The Financial P... Toronto.

Advice on the subject of Taxes on Estates and Inheritances

Keeping abreast of the constantly changing laws affecting taxes on estates and inheritances is practically impossible for the individual—whose thoughts, of necessity, are usually focused on other problems. But we must and do keep abreast of them—and it is because we do that our advice on such matters may prove invaluable to you.

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Executive Available

THE SERVICES OF A CAPABLE AND active man, experienced in sales, general management, advertising, accounting, wholesale, retail and mail order merchandising. Available for early engagement. Age 45, Canadian, Protestant, knowledge of French, located in Montreal. Able to assume responsibilities, take care of details, adaptable to employer's ideas. Moderate salary acceptable with opportunity for advancement. Box 188, The Financial Post, Toronto.

Position Wanted

PRODUCTION MANAGER IN PAPER Mill at present engaged desires change for better opportunities, would consider an association with manufacturer or converter where a knowledge of paper would be of some value, paper mills not excepted, broad practical experience and intimate knowledge of office routine and claims investigator. Will arrange direct references and interview if desired. Box No. 149, The Financial Post, Toronto, Ont.

Manager Wants Position

EXPERIENCED IN SUPERVISING gentleman's estate including farm operations, breeding and recording live stock, building and other construction work, care of lawns and gardens, used to machinery, Hydro, etc. Good general experience, used to carrying heavy responsibility. Canadian, age 45, married, non smoker, non drinker, want steady position, describe your proposition and salary in first letter. Address Box 184, The Financial Post, Toronto, Ont.

Wanted

PARTY OR PARTIES WITH $10,000 TO finance selling organization for rubber article patented in Canada, U. S. patent pending, plans protected by U. S. copyright. Apply Box 180, The Financial Post, Toronto.

Advice on the subject of Taxes on Estates and Inheritances

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NO BLOWOUT DANGERS when you ride on GOODYEAR LifeGuards

M54

Bond Markets

High Grades Steady Under Impact Of War

High Grade Government Prices, Cushioned by Bank of Canada, Drift Lower—"War Babies" React Vigorously

Canadian markets this week felt the impact of long-threatened war. Trading slipped from peace-time activity to war with no drastic revision of prices of high-grade obligations, but with varying results in the more speculative industrial and utility issues.

It was evident from the first day of trading in new circumstances that the market was not going to experience the precipitous decline of 1914; that investors are facing entirely different conditions.

There was little evidence of panic on bond markets, but the widely varied action of the stock market was not duplicated on the bond market. There was little interest in activities. Traders waited for some indication of government policy toward the bond market. Evidences of active support by Bank of Canada of the high-grade market were present.

* * *

High Grades Lower

How long support of the high-grade market can continue is a matter of how long the conflict will last, how much financing will have to be undertaken by the Dominion Government, and numerous other factors upon which it is as yet impossible to even hazard a guess.

There have appeared practically no buyers of high-grade bonds.

Prices of government obligations trickled lower, with wide spreads between bid and asked prices.

It appeared unlikely, from information received from a number of large bond houses, that traders were left in the decline of the last few weeks with large inventories of bonds. The war has been so freely predicted and accepted as a probable culmination of the sustained period of international tension that the actual outbreak has found dealers liquid.

* * *

Losses Likely

Institutional and private investors, however, find themselves with large investments in the various governments' obligations, and if the generally predicted decline in high-grade prices ensues, will sustain losses.

Because of the long warning that the market received and the superior position in which Canada finds itself today to that in 1914, the retreat was orderly and will in all probability continue to be so.

The Dominion Bureau of Statistic's daily index of Dominion long-term bonds fell to 112.6 on Aug. 29. In the week ended August 31, the index dropped to 113.5 from 116.6 in the previous week. The former was the lowest point touched since May, 1937, and was 0.8 below the week of Sept. 29, 1938, during the Sudeten crisis.

The large interest that evidenced itself in equities in the opening days of the week was expected, and consequent loss of the high-grade market had also been predicted.

* * *

"War Babies" Active

Bonds, commonly described as "war babies," followed along with the stock market. Newsprint issues leaped phenomenally in active trading. Lower-priced bonds of companies to whom war activities might mean additional business reacted vigorously.

If Canada is not forced to go to the market for funds in the near future for wartime expenditures, there are other factors that are likely to make it difficult to maintain bond prices.

Both Canada and the U.S. Government will have to undertake a substantial volume of financing this autumn. Canada will have to meet more than $75 millions of maturing bonds. There will be the usual 90-day treasury bill issues. It is expected that the U.S. will call for additions to treasury cash, as well as refunding of approximately $526 millions of short-term issues, maturing in December. Cash borrowings in September are expected to run from $500 millions to $750 millions.

* * *

Financing Ahead

Even without war financing by Canada and Great Britain, this financing would have taken a small bite into the huge surpluses of funds available for investment.

There appears little prospect that security markets will be disrupted this time to the same extent as in 1914, although it is yet too early to make predictions covering more than the immediate future.

John W. Hanes, acting secretary of the U. S. treasury, has estimated foreign investments in the U.S. at the end of 1938 at $4,000 millions. European holdings were $2,700 millions. It is probable that France and Great Britain held the greatest portion of the securities.

The Dominion Bureau of Statistics gives all classes of British investments in Canada at $2,685 millions, and government securities, Dominion, provincial and municipal, $514.2 millions at the end of 1937. The latter figure is readily realizable in markets on this side of the Atlantic, but transferring the securities will probably be an orderly process and not weaken markets unduly.

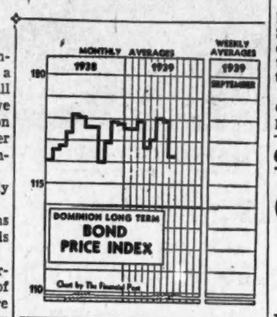
* * *

Interest Rates Firm

An epitaph to an era that appears to have come to an end is reported by the Wall Street Journal in a recent issue.

A savings bank in Booneville, Iowa, has decided to pay off its depositors and retire from business, because it does not know how to invest its money.

All signs now point to the end of this cheap money era. Gigantic financing programmes are in prospect, industry will be stimulated by war-time production and increased industrial activity which will offer the investor a more attractive repository for his funds than high-grade securities at prevailing rates.



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Treasury Bills

Reflecting this hardening of interest rates, yield on Dominion of Canada treasury bills advanced sharply with the last sale, dated September 1, and maturing December 1. Average discount price of accepted bids was 99.82995 and yield was 0.683%.

This rise in yield marks the interruption of a downward trend that has driven yield on the bills from 0.691% on February 1 to 0.553% on August 15.

* * *

Serial Debentures

The pros and cons of issuing municipal debentures by the serial or installment method as opposed to the sinking fund method have been argued at some length.

In the August issue of Public Affairs, Thomas Bradshaw, F.I.A., president of North American Life Assurance Co., and one of the best-known Canadian municipal experts on municipal finances, comes to the support of the serial method adherents.

"The serial method is, in my opinion, the soundest and most desirable," Mr. Bradshaw states. He enumerates reasons for favoring the serial method, as follows:

1. Exact repayments are laid down when loans are established. Specific charge is made on ratepayers to meet interest and principal charges to liquidate whole by maturity.
2. Taxes received for purposes are expended each year on principal repayments, while sinking fund accumulates to maturity.
3. Serial debentures bring more favorable prices.
4. Financial statements of city reflect steady reduction of debt liability. Value of debentures held by sinking fund becomes uncertain.
5. Unsoundness in municipal financial structure will come more quickly to light under serial method. Weakness revealed when city is forced to retire serial bonds, but not in sinking fund method.
6. Pitfalls of investing sinking fund avoided.
7. Elaborate investment records not necessary.
8. Practically no loss from accumulation of uninvested sinking funds.
9. Relating maturity dates of sinking fund holdings to maturity dates of municipality's obligations difficult task obviated by serial method.
10. Possibility of insufficiency of return on sinking fund to retire maturing debentures eliminated.
11. Serial method of debt repayment tends to greater efficiency and more businesslike procedure.
12. Eliminates practice of selling to sinking fund municipality's own securities when it is impossible to find a public market for them.

* * *

Bond Index

DOMINION OF CANADA
Long-term Bond Index

	Latest week Aug. 25-31	Preceding week Aug. 18-24	Weekly average year ago
Price	113.5	116.6	117.5
Yield	68.0	62.7	63.0

Bond Redemptions

Bond Issues:	Rate	Year Due	Price
Robt. Simpson ..	*5½	1953	Jan. 1 '40 103
B. A. Oil, s.f. deb.	4½	1945	Sept. 15 101¼
Wood, A. & J. ..	1½	1944	Oct. 4 103

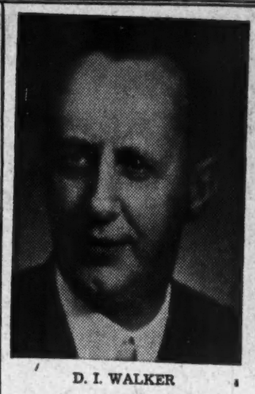
*All outstanding balance. For sinking fund purposes: $326,000.

Bond Tenders

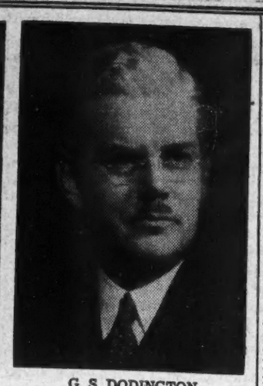
5 p.m., Sept. 11, Farnham, P.Q. — $20,000, 4%, dated Aug., 1939, redeemable annually in 20 years. Armand Bordeleau, sec.-treas.

5 p.m., Sept. 18, Catholic Sch. Com. of Three Rivers, P.Q.—$175,000, 3½ or 4%, dated May 1, 1939, redeemable serially May 1, 1940, to 1968. J. U. Gregoire, sec.-treas.

Sept. 19, Drummondville, P. Q.—$106,500, 3½%, redeemable serially in 20 years.



D. I. WALKER



G. S. DODINGTON

PROMOTIONS ANNOUNCED —

Western Canada Flour Mills Co. announce appointment of D. I. Walker, Toronto, as assistant general manager and G. S. Dodington as general sales manager of the company, effective Sept. 1.

Mr. Walker gained his early business training in railroading, starting his business career with the Glasgow, Barrhead and Kilmarnock Rly. in Scotland, later joining the C. P. R. in Canada. Mr. Walker joined the traffic department of the milling company in Winnipeg in 1910, later serving as traffic manager, local manager, Toronto, an eastern manager, which position he occupied until his recent appointment as assistant general manager.

G. S. Dodington has been connected with the sales department of the company in various capacities since 1911, latterly as manager of sales promotion and merchandising.

Commodities

Commodity Prices Rise On Declaration Of War

History Again Repeats Itself as Big Demand is Seen While Number of Producers is Reduced, Transport Made Difficult

Substantial advances in the prices of certain essential commodities reflect advent of war. History shows that higher prices have always followed every major conflict. From the Peloponnesian wars down through the Hundred Years War and the Napoleonic War to the Great War, the trend has been the same.

A wide range of factors contribute to the uptrend in a modern war such as the present one.

In the first place men are taken out of productive occupation to join the army, which is not only a non-productive but a destructive agency. Many of these men will consume larger quantities of food than they do in peace time. The army scale of rations is usually somewhat in excess of that of even the average well fed man. It is greatly in excess of other sections of the population. In addition women in recent years have been included in the auxiliary services and they too help to increase the consumption of food.

No Let Up in Demand

The same thing happens in regard to materials used in making equipment and munitions. Everyone in a well equipped army is suitably clothed. Clothing and harness get hard usage. Trucks and wagons wear out more rapidly than they do in peace time and are often destroyed. Shells are made only to be blown away. But the war must go on. The supply of shells must be kept up. Equipment worn out or destroyed must be replaced. There is no let up in the demand.

But the number of people producing these goods or the raw materials from which they are made shrinks. In the belligerent countries even the supply of female labor decreases. The result is that wages increase adding to the cost of production in all lines.

Costs of transportation by land and sea advance. Coal mining is affected by miners leaving their regular work to join the army as happened in Nova Scotia in the last war, fewer experienced men in the mines cause higher costs. The price of coal rises, adding to the cost of industry and transportation. Railways in addition to higher fuel prices find that the increased traffic generally brings demands for higher wages. The same thing happens at sea, with the added risk of destruction by the enemy adding to the cost of insurance. If the activity of the enemy is effective, the movement of goods from distant parts is made difficult as in the case of shipments from Australia and New Zealand during the last war.

Government Credit

Another factor affecting the situation is that governments have or think they have unlimited credit. The war must be carried on, whether it involves inflation of the currency or the mortgaging of the resources of the country for the next hundred years. On top of this comes the fact that military needs tend to take precedence over civilian. The government having the credit of the whole country to draw on is not afraid to bid prices up and the civilian buyer must follow.

Not all commodities, however, advance in time of war. Luxuries and non-essentials tend to decline. In the last war rubber was regarded as one of the latter. This time with the armed forces moving largely on wheels rubber is likely to be in greater demand.

The increased mechanization of the land forces and the greater use of airplanes will also mean a greater demand for gasoline. Between 1914 and 1918 the price of gasoline in Canada rose from 20 cents a gallon to over 32 cents. Copper advanced to over 32 cents a pound, as demand increased in relation to the supply the cost of production being influenced of course by the trend of wages.

Nature Takes a Hand

Sometimes nature takes a hand.

In July, 1914, No. 1 northern wheat at Winnipeg was 90⅞ cents a bushel. By December that year it had reached $1.19⅛. But in September, 1915, owing to the record breaking crop harvested that year, it fell back to under 92 cents, a low level not touched again till some years after the war ended. The highest price touched by wheat at Winnipeg during the war was $2.89 per bushel in May, 1917.

Some other price changes were:

	1918	1913
	$	$
Beef hindqtrs., cwt. ..	24.47	15.03
Bacon, lb.	.41	.18
Butter, lb.	.50	.39
Milk, evaporated, lb.	.06	.04
Sugar, granulated, lb.	.23	.04
Hides, lb.	.22	.14
Sole leather, lb.	.80	.42
Hay, ton	25.00	13.00
Coil chains, cwt.	11.88	3.80
Lumber, white pine, M feet	51.00	33.00
Newsprint, per ton ...	70.00	35.00
Copper, per lb.	.32	.11
Nickel	.35	.38
Gasoline	.32½	.20

In this tabulation it will be noted that the price of nickel actually declined during the war to 35 cents where it has remained ever since.

Difficulty in obtaining supplies sometimes leads to substitutes.

Canned goods were used in large volume last time. They will probably be in even greater use again. If enemy activity would prevent adequate supplies of tin reaching this country it might force the use of substitutes for tin cans. It is questionable, however, if paperboard containers could be made tough enough to stand the wear and tear of army transport. In food products and base metals generally, however, Canada stands well prepared to supply both her own needs and those of her allies.

Commodity Prices

	Latest week	Previous week	Same week last yr.
Cattle	$6.75	$6.75	$7.00
Hogs	8.15	8.65	10.00
Copper, lb.	.10¾	.10½	.10½
Cotton, lb.	.0892	.0911	.0633
Rubber, lb.	.1880	.1885	.1637
Sugar, raw, lb. ...	.0224	.0280	.0295
Silk, lb.	2.57½	2.64	1.75½
Wheat, Man. (bu.)	.70¼	.59	.61⅜
Coffee, lb.	.05⅛	.05⅛	.05⅝
Hides	.12	.10½	.11⅛
Weekly Indices			
Canada (D.B.S.) ...	72.7	71.9	75.1
Do., Wood, Gundy	53.3	53.9	54.8
U. S. Labor	74.9	74.6	77.8
Dow Jones (future)	47.98	47.00	46.10
Crumps (Brit.)	70.8	70.7	72.6
Fishers'	78.4	78.1	80.6
Monthly Indices			
Canada (D.B.S.):			
Retail (July)	83.1	82.9	84.2
Wsale (July)	72.6	73.3	78.6
U. S. (June)	75.6	76.2	78.3
Gt. Brit. (June)	98.1	97.8	100.7

Note: The base of indices is that 1926 equals 100. The British index is Board of Trade converted to 1930 base.

Base of price quotations is as follows: Cattle — Steers, good, over 1,050 lb., top price, Toronto. Copper - electrolytic, New York. Silk — Crack 6b., 13-15 New York. Sugar — 96 degrees centrifugal c/f New York. Wheat—No. 1 Man. North., Ft. W.-Pt. A. basis. Hides — No. 1 packer light.

Bridge Co. Stock Ready in 2 Weeks

Hamilton Firm Prospered from Wartime Factory Building

Supplementary letters patent have been issued to Hamilton Bridge Co., confirming the capital readjustment. This was voted on favorably by shareholders on April 8, 1939.

By this plan each existing preferred share is exchanged for 10 shares of new common and each existing common share for one quarter share of common. Authority is also given to issue up to $400,000 of 10 year convertible bonds.

It is expected that another couple of weeks will elapse before the new certificates are ready for distribution and that at that time directors will issue a statement of conditions to shareholders.

It is known that Hamilton Bridge has obtained some good contracts in recent months. One of these is that for the structural steel for the new Aluminium Ltd. plant just outside of Kingston, Ont., on which work is well under way. This contract involved between $300,000 and $400,000. Another contract is that for the structural steel in the new postal terminal at Toronto. This job will require approximately 3,800 tons of steel and is worth slightly over $500,000.

The company has a large amount of unused plant capacity which would be available for emergency war orders. During the last war, Hamilton Bridge Co. obtained a large amount of business and was quite prosperous. The company did not actually make war materials but was busy on the new factories which other companies were erecting for the manufacture of munitions of all kinds. If, as is generally expected, this war results in accelerated demands on Canadian industry, firms such as Hamilton Bridge may reasonably expect considerable activity in the necessary factory building that will go on.

Thomson & McKinnon Handle Pierce Business

On the closing of the Toronto offices of E. A. Pierce & Co., R. J. Holmes, Canadian manager for E. A. Pierce & Co., is joining Thomson & McKinnon, according to an announcement by George Ross, Canadian partner of the latter firm.

Credit Status Aided By Full Information

J. T. Bryden Addresses Ontario Municipal Ass'n Meeting

Continuance of the high regard in which municipal debentures are held as a class, is dependent upon municipal officials supplying adequate and accurate information to investors and upon sound administration, J. T. Bryden, assistant treasurer of the North American Life Assurance Co. told members of the Ontario Municipal Association at their forty-first annual meeting in Toronto.

Investors' likes and dislikes vary from time to time, Mr. Bryden said, and a turn to bonds at one phase of a cycle may have the effect of raising the price of municipal bonds and lowering interest rates at which municipalities may raise funds. He explained:

"Capital is mobile and can move very quickly, and over its movements, municipal officials can have little effect. What little effect they can have lies only in their efforts to popularize debentures as an investment through the provision of adequate and accurate information, and through the application of sound administrative practice, to the end that municipal debentures as a class may be highly regarded.

"It follows that each municipality in particular should try to place its own financial affairs in such condition that its debentures will prove relatively attractive among municipal obligations, and as such will command a relatively high price compared with those of other municipalities."

Depression Defaults

The downward swing of business in 1930 exposed many weaknesses in municipal obligations, hitherto not discernible, Mr. Bryden declared. He added:

"In many cases it was found that there had been extravagant and unwarranted expansion of capital debts. Tax collections were declining, and expenditures were not being reduced to compensate. Municipal budgets were out of balance and deficits were not being levied for. Tax collection machinery was inefficient and banking accommodation had been too generous. Assessment rolls were not being purged of dead assessment, and municipal officials were having difficulty changing from a policy of expansion to one of retrenchment."

Uncontrollable Expenses

Depression also brought to municipalities the necessity of providing for unemployment relief. The tax base of the municipalities, real estate, was not designed to assume this burden.

Many defaults of principal or interest or both that followed brought it home to investors that selectivity in municipal securities was as important as any other type of investment. Subsequent refundings have served to emphasize this need for selectivity.

Any appraisal of a municipality's ability to pay debt charges must be based on one basic premise, minimum essential municipal services must be maintained and that the demand for taxes must not only be within the ratepayers' ability to pay, but must leave also some incentive to pay.

Statements Important

As a consequence of the defaults that occurred in Canadian municipalities, investors are paying more attention to records of the municipalities as shown in their annual statements, according to Mr. Bryden. Municipalities with good credit positions are receiving benefits in more favorable interest rates on their obligations.

Mr. Bryden described much of the current high prices for municipal obligations as "fortuitous or artificial. He continued: "The comparative lack of demand for funds by private industry has led to the employment of these funds in the bond market, particularly the government bond market, with the result that bonds have been carried to almost all-time high levels. Municipal bonds have participated in this movement and to the extent that current prices have been influenced by this event, may be said to be fortuitous or artificial."

Investors are aware that the burden of real estate taxation is equal to, if not beyond, property owners' ability to pay, Mr. Bryden believes. This burden, in turn, has depressed real estate values and actual sales of properties have been driven lower than assessed values. "This situation, unless modified, carries with it grave problems for municipalites. Upon the soundness of real estate values the assessment base rests and upon the soundness of assessment base the entire municipal financial structure rests."

Uncontrollable expenses comprise too large a part of municipal expenditures, Mr. Bryden claimed, and reductions in controllable expenditures are difficult.

"Services once established, soon become essential, and reductions in services are usually most vociferously opposed by those enfranchised citizens who are tenants, not property owners, and who do not feel the burden of municipal taxes to the same extent."

Property Ownership Unpopular

Mr. Bryden dealt with methods of keeping uncontrollable expenditures as low as possible.

A swing from property owners to tenants was noted by the speaker. "In earlier days, ownership of real estate was an evidence of wealth," he said. "Today such is not necessarily the case. In fact, today, many property owners are just able to make ends meet, while many with substantial incomes are classed as tenants, and through their rentals do not pay the full cost of providing that housing accomodation."

Municipal governments, unlike other governments, undertake to repay monies borrowed, Mr. Bryden said. This contributes to the scarcity of municipal bonds and strengthens prices. Despite defaults of the past few years, municipal obligations have enjoyed a good record. The experiences of the past nine years have led to better municipal administration, due to the municipal officers' own efforts and supervision exercised by provincial governments.

No Uniformity in Accounting

In pointing to the advantages of supplying adequate information on a municipality's operations, Mr. Bryden observed the lack of uniformity in municipal accounting hampers analyses of statements. There is in many municipal reports a lack of essential information. Municipal authorities have not always been as co-operative as possible in supplying information to enquiring investors.

Mr. Bryden outlined for the association members procedure for analysing a municipality's financial position. He indicated the information which he believed necessary in a municipality's financial report.

"The engendering of confidence is almost completely in the hands of the municipal council and officials, through sound and conservative administration and frank and complete presentation of all essential information, and I believe it is important that municipal officials should be fully aware of the degree of study extended to their annual reports and to their statements by investors today," Mr. Bryden concluded.

Dominion Stores Losses Higher

While Sales Up 7.5% Profits Are Down

Dominion Stores Ltd. reports that while sales for the 24 weeks ended June 17 increased 7.5% over those of the corresponding period in 1938, operations during the period resulted in a loss of $82,881, compared with a loss of $9,192 for the corresponding period last year.

Operating expenses deducted include depreciation on fixed assets, taxes, and $29,032, representing cost of closing 68 unprofitable store units and of opening 33 new stores. New stores opened during the period include 30 units in Toronto, formerly operated by Stop & Shop Ltd., acquired Feb. 13, 1939. In the corresponding period last year total expended for this purpose was $8,952.

Net working capital at June 17 amounted to $2,073,935, compared with $2,174,049 at Dec. 31, 1938.

There have been two periods following the six four weeks period ended June 17. Sales to Aug. 12 showed an increase of 7.21% over the same period of 1938.

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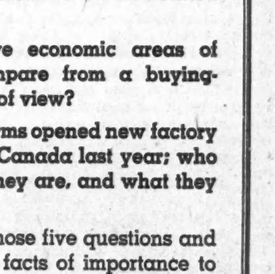

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Moss, Lawson to Handle T. Ross Boys Accounts

Moss, Lawson & Co. announces that it has taken over the accounts of T. Ross Boys & Co., former member of the Toronto Stock Exchange. Mr. Boys is retiring from business. Robert B. G. Clarke, former partner with Mr. Boys, has become a partner of Moss, Lawson & Co. Other partners of the latter firm are Stanley Moss, Frank G. Lawson and John D. Irwin.

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GREAT BRITAIN, London—Sun of Canada Bldg., 2, 3 and 4 Cockspur St., London, S.W.1. (Office temporarily closed under evacuation scheme.)

TORONTO, SEPTEMBER 9, 1939

The Financial Post Editorial Platform for Canada

The duty of political leaders is to lead; to give direction to public opinion; to act with courage in matters of public policy; to combat inertia in the conduct of the nation's business.

The Financial Post stands for LEADERSHIP of this kind in Canada.

Such leadership is essential to preserve our free and democratic institutions. It is urgently needed, now, in Canada, in order to:

1. *Eliminate waste from public business.*
2. *Put idle resources of manpower and materials to work.*
3. *Promote migration of European industries to Canada.*
4. *Promote a spirit of national unity in place of conflicting sectional loyalties.*
5. *Put Canada's defense programme under competent direction.*
6. *Modernize our railway services on a sound, profitable basis.*
7. *Maintain financial integrity in meeting public and private obligations.*

Strong Men Only

THE promptitude with which members of the British Cabinet resigned immediately on declaration of war in order to give the Prime Minister a free hand in reorganizing the Government is a precedent which should be followed at once in Canada.

The most urgent need in Canada is the strongest leadership the Government can muster. This does not necessarily mean "national" government. It does mean conscripting for national service at Ottawa the best political and executive brains in the country—whether those brains are now in opposition benches, in provincial legislatures or in private business.

Wise, courageous policy can get nowhere unless it has behind it strong leadership and personnel. One could name at least three departments at Ottawa where weak or incompetent personnel have frustrated accomplishment in recent years.

Such things are often condoned in peacetime. They cannot be permitted in time of war.

Duty Not Profit

THE generation of businessmen who went through the last war has no stomach for war business and war profits in the present conflict.

Twenty-five years ago, patriotism and a desire to serve their country stimulated early enthusiasm. At the same time visions of business expansion and increased turnover at rising prices caused many firms to scurry to Ottawa looking for orders. Along with willingness to strive in a common cause was a naive belief on the part of many people that war business (if you could get it) was synonymous with profits and prosperity.

Four years of weary and continued struggle with an inevitable catastrophic price collapse as a climax spoiled this rosy dream. Big profits were made by a few but by the time war taxes, punctured inventories and overextension of plant had taken their toll, the net result for most firms was not unlike a very bad dream come true.

Today, these men in common with a newer generation of industrialists stand ready to do what they can to mobilize their plant and personnel in the event of war. In many cases, preliminary preparations have already been made. The shift from peace to wartime economy will be made with the utmost speed and efficiency.

But there is little thought of profit in these plans. There is no selfish eagerness to tackle the work that will have to be done. Only grim determination to make the best of a bad job and get it over with as quickly as possible.

Saving Human Life

HUMAN life will be safer because of the new "Sealed Beam Headlight System" which most automobiles will feature in their 1940 models. Instead of the familiar "removable lens" headlights, your car of tomorrow will carry a revolutionary brain-child born of three years research by the Automotive Safety Foundation.

Most striking feature of the lamp is that the reflector, the filament and the lens are made in a single, hermetically-sealed unit. Dirt and moisture cut the efficiency of an old-style headlight by as much as two thirds in three years. Sealed beam lights are said to be safe from these hazards. They have also a permanently fixed focus and are said to retain their original power and brilliance until the long-life filament finally burns out. The unit is then replaced and is interchangeable for all makes of cars.

How did these notable improvements come about?

The answer is: co-operative effort by motor car makers, lamp manufacturers and public authorities. Through joint research and pooling of public and private resources, an advance of great importance to the industry and to all who use our highways at night has been made possible.

There's a lesson here for all industries — one that carries over into public as well as business life. It is a lesson of what can be accomplished for the common good when there is willingness to pool ideas and ideals.

The Hand of Hitler

EVEN before war had been declared, the pungent pen of Dorothy Thompson expressed through her syndicated column the sense of sickening doom that seemed last week to be enveloping the world—all because of one man.

"The people of the world feel somehow in their nerves and hearts, and in their minds too, that we might just as well be standing at the beginning of a great era of intelligent and affectionate co-operation as at the beginning of universal destruction.

"The will to that era is everywhere — in all countries, and not least of all in Germany. But it is being strangled to death.

"It is not only at Danzig that a hand is on the windpipe of a people struggling for breath. It is through the length and breadth of the earth.

"The hand must be taken away."

The hand is the hand of Hitler.

Hitler—the man who rose to right wrongs but whose misguided genius has led his people along a path leading to catastrophic destruction. Dorothy Thompson writes a devastating truth when she charges that "the instruments of power of a great nation are in the hands of a man who is an arsonist, a liar, a murderer, a blackmailer and a thief." She quotes chapter and verse to support her accusations—the firing of the Reichstag; repeated broken promises to Poland and others with whom pacts and pledges have been made, etc. The list could be extended at length.

Now the die is cast. Goodwill and peaceful prosperity are banished temporarily from the good earth.

They will not return until the menace of Nazi gangsterism is removed.

When that is done, the even greater task will be for the victors to apply the principles of Christian justice and charity in the fashioning of an enduring peace.

Maritime Fish Go to Market

LACK of proper marketing facilities has been one of the principal drawbacks to greater prosperity in the primary industries of the Maritime Provinces. In particular the in-shore fishermen have been confronted with the serious problem of making a livelihood in face of very low returns for their labor. This state of affairs has been discussed at length by the provincial governments and various fishermen's organizations. Until recently there were no signs of any real progress in improved marketing methods.

Current developments suggest that Maritime fishermen are now on the right road toward bringing about a wider and more profitable market for their catch. The approach is the adoption of up-to-date marketing methods in making fish products more attractive to the consumer. This leads in turn to a better price for the primary producer. The New Brunswick Government has made arrangements with private interests for the establishment of a $200,000 fish processing plant at Caraquet to handle 50,000 lb. of fillets daily. Another plant is already in operation at Petit Rocher. In Nova Scotia several companies are adopting the rapid freezing process for fillets.

In both instances it is planned to carry on extensive advertising campaigns, supplementing the Federal Government's effort, to induce the public to consume more fish. If these initial units are successful, it is planned to establish other plants.

The taking hold of the fish marketing problem of the Maritimes in this way is a good sign. A businesslike approach augurs well for ultimate success. Any improvement which can be effected in increasing the market for fish and the return to the fisherman, is bound to have a beneficial effect on the whole economy of the Maritimes.

Municipal Reports

LAST week at the annual meeting of the Ontario Municipal Association, John T. Bryden, assistant treasurer, North American Life Assurance Co., said some forthright things about municipal credit in Canada. He gave some illuminating pointers to municipal officials on improving their community credit by bettering relationships with investors who purchase and hold their securities. His comments are equally pertinent in peace or war.

One point concerned the annual report and what it should contain. Said Mr. Bryden:

"The annual report of a municipality should be a readable, human document and should set forth all the essential details of a municipality's operations in a clear and understandable form for the benefit of ratepayers and investors alike, and also for the benefit of council and officials.

"It is very easy for those closely engaged in any kind of work to miss the significance of broad, general trends, and at least once a year those in charge of municipal affairs should calmly consider the position of their municipality as a whole.

"The actual work in the compilation of such a report is an education in itself and cannot help but lead to better municipal administration."

Municipal credit ratings, in Mr. Bryden's opinion, are closely related to the excellence of annual reports. Investors have immediate confidence in a municipality which publishes a lucid, comprehensive report. Poorly constructed reports and those from which essential information is lacking tend to destroy confidence. This means lowered credit and higher interest costs to the municipality and ratepayers.

Municipal councils, emphasizes Mr. Bryden, always have something to sell—their services to ratepayers, their municipalities to prospective residents or new industries, their debentures to investors. If there is quality behind the product—that is, if the municipality has a good story to tell—it should be merchandised properly through an attractive, well-prepared annual report.

Militia and National Service

LATE last week there were many who smiled or snickered as they saw young chaps in none-too-smart uniforms doing their duty "on guard" at local Armories. The youngsters themselves seemed ill at ease. Passers-by treated the thing as a bit of a joke.

Unfortunately Canada's militia—lock, stock and barrel — has been treated as a joke by Canadians ever since the Great War. Instead of being modernized and made an integral part of community life it has struggled along in a weak, neglected condition. For the most part ill equipped and lacking in public sympathy and support, it has been kept alive almost entirely by a handful of public-spirited officers and men in each community who cherished the ideal of a branch of public service equally valuable to the individual and to the country at large.

It is now too late to revamp the militia in favor of a wider programme of national training and service as has been done in Great Britain. Such an undertaking should and could have been created at any time in Canada in the last 20 years. It would have replaced the obsolete militia organization which is a hangover from the Crimean days and to which Canada has clung, despite progressive leadership in other directions in almost every other country. The immediate job is now to expand the existing militia organization as quickly as possible on an active service basis.

But apart from enlistment in the fighting or defense forces, an immediate effort might be made to register Canadians who are willing and able to make a special contribution in the present emergency. An important step in this direction has already been taken by the Voluntary Registration of Canadian Women which last week submitted to the Prime Minister a plan for nationwide registration of all Canadian women for national service work.

The Canadian Editorial of the Week

Radio Commentators

Ottawa Journal

In many Ottawa homes, so we are told, the radios are not being turned on at all this week. These are the homes of families which wisely have decided against the tenseness that comes from the momentary and long-delayed expectation of world-shaking news. If there is to be bad news they will hear it soon enough; if good, it still will be good when the paper comes out.

There is much criticism of the part the radio is playing in this crisis, and some of it is justified. There is also high praise for its enterprise and alertness—and some of that is justified.

The broadcasting of straightforward news at set times, such as is done by the Canadian Broadcasting Corporation, on authoritative reports from The Canadian Press, is a commendable public service. Not so much can be said, we think, for the habit of breaking into programmes to read bulletins, especially items of minor importance, because the knowledge that news may come at any moment keeps many people in that state of tenseness which is good for neither private nor public morale.

And we cannot help thinking suppression of the whole tribe of "commentators" would be a step in the public interest. We have listened to numbers of them, and their efforts are remarkable as much for the paucity of their information as for the ingenuity of their deductions. The things they know are the developments known to every newspaper reader; the rest is padding. And because their jobs depend on making a good story out of each appearance before the microphone the natural tendency is to dramatize, to exaggerate, to make much out of little. They make free use of the well-worn cliches, "well-informed circles," "sources close to the Fuehrer," and all that sort of thing, and they try to leave the impression that actually they know far more than they can say. The contrary, in most cases, is the fact.

If this crisis ends in war it seems to us the manner and matter of C. B. C. news needs to be considered very carefully. Straight news is fine, at regular intervals, but the comment on it can do much harm.

Editorials in Brief

One lighter moment in the gloom of last Sunday was the radio announcer who informed us that President Roosevelt's address would be translated into six languages.

One of the translations was to be English.

• • •

If the war lasts many years there should be a boom demand for electrical transcriptions of modern and classical music.

Radio programmes last week end dug up old records that had been gathering dust for many a long year in an effort to fill an almost day and night schedule between news flashes.

• • •

When we parked our car the other day at Toronto's C. N. E. we counted a score or more of New York State license plates within a dozen yards or so.

It's no small tribute that these American visitors still flock in their thousands to our annual exhibition when they have their own big show right in their own state.

• • •

Three years ago "Tiny" Ironside spoke to members of the Canadian Club of Toronto. He was en route to England from India to take up his new appointment as General Officer Commanding-in-Chief of the Eastern Command.

In thanking him for his address, Col. Arthur Bishop said:

"Without being prophetic, one hazards the opinion it will not be long before we shall know him and look back on this day when Field Marshal Sir William Edmund Ironside was with us."

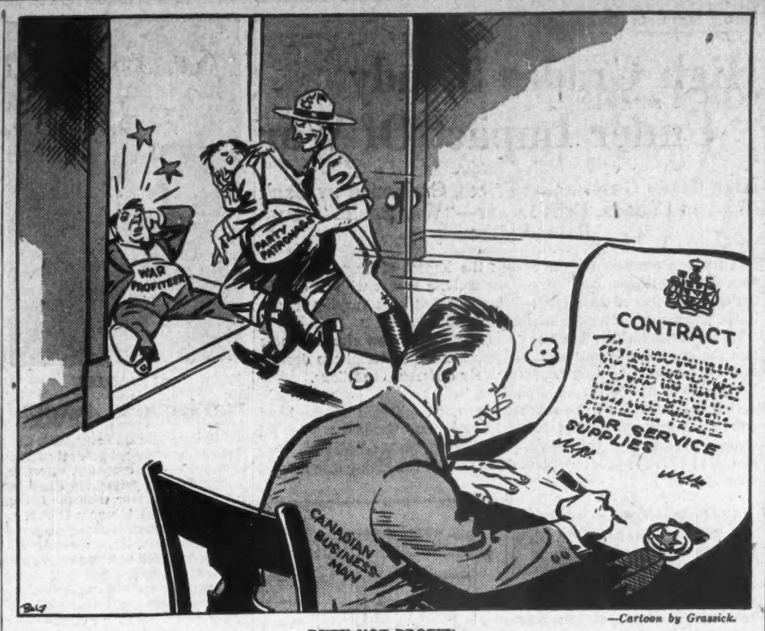
This week this famous general was named Field Marshal and Chief of the Imperial General Staff.

Sayings of the Week . . . .

"My ideal infantryman has the qualities of a successful poacher, cat-burglar, and gunman."—*Lt.-Gen. Sir Archibald Wavell.*

• • •

"The airmen of Britain and France share henceforth in a single sky."—*The French Air Minister (M. Guy La Chambre).*



—Cartoon by Grassick.

DUTY NOT PROFIT!

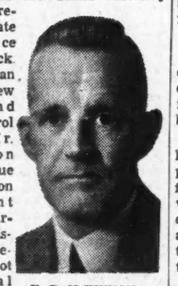
Post-Scripts . . . . .

Prices and Trade

It was a fine tribute to the calibre of Canada's younger civil servants when Ottawa nominated the personnel of its new wartime prices and trade board over the week end. The three young men picked for this important job are all in their forties. All have had a dozen or more years experience in public service. All had business training before that. Ranked against their "opposite numbers" in other countries they are men who could hold their own or command attention and acclaim in any government service in the world.

• • •

Only a few weeks ago we wrote at some length in this column about Hector B. McKinnon as the likely chairman of the Tariff Advisory Board to replace the late Mr. Justice Sedgewick. As chairman of the new Price and Trade Control Board, Mr. McKinnon will continue to carry on his present duties as Tariff Commissioner. Whether or not his formal appointment to the senior tariff position in Canada will now be made is problematical.



H. B. McKINNON

Hector McKinnon has well earned his soubriquet "perfect civil servant." Through nearly 15 years of protectionist and low tariff ups and downs he has maintained his reputation as the foremost tariff expert in Canada, but he has deserved and won the confidence and friendship of politicians and businessmen alike. His intimate association with the administration of the Canadian tariff since 1925 has brought him in contact with almost every businessman and industrialist in the country. Prior to that he was a newspaperman, so his knowledge of the public relations angle of his new job will be based on practical experience in the news rooms of the old Toronto Globe.

He knows something about agriculture and farm problems, for his earliest assignment (which ended only when he went away to serve his country in the war of 1914-18) was roaming the concession lines of Old Ontario in search of news stories on crops and livestock. His by-line in those days was "Timothy Spray." After the war he was a travelling correspondent for the Globe in western Canada.

• • •

Young Scotsman

David Sim, who adds membership on the new Price and Trade Control Board to his duties as Commissioner of Excise, celebrated his 40th birthday a few months ago. He has grown stout and wise since he came to Ottawa in 1927 as private secretary to Hon. W. D. Euler, then Minister of National Revenue, but has never lost his crackling Scottish accent nor his affability and sense of humor.

DAVID SIM

His appointment as Excise Commissioner in 1934 came after the unusual record of serving as private secretary to three successive ministers of National Revenue, two of whom were Conservative and one Liberal. At the time of his appointment to this senior position in the public service he was only 34 years of age. The appointment was made by Prime Minister R. B. Bennett, despite the fact that David Sim had been a lifelong Liberal. It was well-deserved recognition of merit.

David Sim was born in Glasgow. His family emigrated to Canada in 1911, when their son was 12 years old. He finished his education by attending high school at Kitchener. When he finished, he promptly joined the First Canadian Infantry Battalion as a private (age 16); was wounded at Passchendaele. After the war he joined the staff of the Bank of Nova Scotia, then took a secretarial position with the Waterloo Trust Co. in Kitchener. It was there that he came into close contact with W. D. Euler, and when Mr. Euler went to Ottawa as Minister of National Revenue in 1927, he asked David Sim to come along as private secretary.

When the change of government was made in 1930, Hon. E. B. Ryckman kept Mr. Sim on for a month or two, found him indispensable and appointed him as permanent private secretary. Later, during Mr. Ryckman's subsequent illness, he was brought into close contact with Rt. Hon. R. B. Bennett, the acting minister. Again David Sim sold himself to his Conservative chief with the result that when the department was reorganized in January, 1934, he was appointed to the newly-created office of Commissioner.

• • •

In addition to his public service duties, Mr. Sim is this year president of the Ottawa Rotary Club. He is married and has two children—a boy and a girl.

The intriguingly neat flourish of his signature (always done in purple ink) is a constant source of fascination to his friends and those with whom he corresponds. Some day we will get a graphologist to analyze it for us and tell us some of the additional achievement it foretells for this youthful civil servant.

• • •

Anti-Combine

The other member of this Price Control trio is a man who has grown equally wise and respected in the course of his public duties as Combines registrar and commissioner during the past 15 years. Ever since Canada passed its Combines Investigation Act in 1923, Fred H. McGregor has been the man most largely responsible for its operation and success. Originally he was Registrar under the Act. More recently he has been the one-man Czar of Canada's anti-combine machinery—a responsibility which seems a bit out of keeping with his quiet, soft-spoken manner.

FRED McGREGOR

Mr. McGregor's father operated what was at one time one of the largest retail grocery businesses in Ottawa under the name of R. McGregor, Ltd. Being good Baptists, the son was naturally sent to McMaster to finish his schooling. He graduated there with great distinction in 1913 and started in business with the Ottawa Free Press, later shifting to a mercantile venture in Montreal. His association with public affairs dates back to a close association in the study of industrial relationships, with Rt. Hon. Mackenzie King.

• • •

Through the hectic rough and tumble of a dozen big trust-busting probes and battles he has evolved from the background of his own philosophy and experience as sound a viewpoint in respect of legislative control of business as can be found anywhere on this continent. Two years ago he was appointed the full-fledged Commissioner of an amended and strengthened anti-combines act. Under him business has repeatedly been assured that there will be no harrying, no waving of the big stick over legitimate enterprise, no public crusade.

Instead there is at all times an earnest effort to co-operate in seeing that the free play of competition operates in business transactions throughout the Dominion.

Mr. McGregor is a firm believer in the ultimately wholesome results of free competition within the limits of the social conscience of the present day and generation. He is convinced of the willingness of most businessmen to "play the game" according to the rules, once those rules are understood and appreciated. His preference is to carry on his job in consultation with Canadian business rather than by prosecution of it.

He will team up well with his fellow price and trade controllers toward adjusting business to the new conditions of a war economy.

Press Censor

When it was learned last week that Canada was to have a press censor, newspapermen in all parts of Canada instinctively said. "We hope it will be Walter Thompson."

Even before he made such an extraordinary success of press arrangements for the Royal Tour, Mr. Thompson was rightly called the dean of Canadian publicity men. His knowledge of newspapers and newspapermen is little short of fabulous.

W. S. THOMPSON

Take for example the memorable day last May when the sixty or more correspondents on the Royal Pilot Train, as well as all the accredited members of the Parliamentary Press Gallery were "commanded" to meet the King and Queen at Rideau Hall. In all there were over one hundred people in the huge oval reception room.

When the King and Queen entered, Walter Thompson undertook, without the slightest hesitation to introduce each and every one in the room personally. He not only named everyone correctly but gave the paper or publishing house which they represented and in most cases a brief word of "background" information in order to "break the ice."

• • •

A man of ordinary height but Falstaffian girth, Walter Thompson can usually ride unruffled through any and every situation in which he finds himself. His creed is "co-operation." No matter how tough a spot he is in, he usually finds a way to reach a solution which leaves everyone happy or at least feeling they have been given "the breaks." There will be no ruthless, unreasonable clamping down on newspaper coverage in Canada if Walter Thompson has his way.

Having been a newspaperman himself for much of his business life, Walter Thompson has never forgotten that what a newsman wants above everything else is "coverage." Day after day, night after night, on the Royal Tour, he spared no effort to give the pilot train correspondents and local newspapers the maximum possible coverage. Where local officials or members of the royal party would have been content merely to let newsmen scramble for news as best they might, Mr. Thompson left no stone unturned to ensure that everyone had the utmost opportunity to get first-hand contact with the day's story. On one occasion he even made arrangements to charter a plane so as to facilitate better coverage in the Maritime provinces.

• • •

Born at Newcastle-on-Tyne, England, in 1885, he was the son of a Scottish newspaper editor. He entered newspaper work on Fleet Street, and after serving on various London papers went abroad, working successively in South Africa, Australia, New Zealand and the South Sea Islands. His first "outside" job is said to have been an assignment at Queen Victoria's funeral for the London Times.

Coming to Canada in 1911 he became city editor of the old Montreal Witness and later filled the same position on the Montreal Herald.

In 1914, he was appointed press representative of the Grand Trunk and Grand Trunk Pacific Railways, and when these lines were merged in the Canadian National Railways in 1922 he became director of publicity for that system.

• • •

His new job is to head a committee which will include representatives of the departments of National Defense, Transport, Post Office and the Secretary of State.

These four departments all have to do with one or another form of communication in peace or war. The Post Office Department is exclusively concerned with the mails; Transport has jurisdiction over radio broadcasting and telegraph communication within Canada; National Defense over cable and wireless communications between Canada and other countries and the Secretary of State has to do with the press.

In the Mail . . .

Cutting Housing Costs

Editor, The Financial Post,

From the article appearing in the Sept. 2 issue of The Financial Post, and from previous articles, one cannot but get the impression that the cost of building is much too high. That there is a lack of effort to accomplish economy and co-operation to produce housing units at a reasonable cost.

May I say that the difficulty does not lie so much with the trades as with the conditions under which it has to operate.

If it were the national desire to suppress building, and to set up authorities to extinguish home building in particular, it could not possibly have succeeded any better than by imposing the difficulties now surrounding the industry.

Britain is constantly held up as a shining example of accomplishment. There the unit of exchange is "managed" or held on a steady value in terms of goods, from year to year. Here the opposite is the case. Variation in values from year to year have done more to destroy confidence than any other item. Here the highest interest rates, with the greatest security, go hand in hand. Once your name is on a mortgage renewal you are probably "sunk" for you can never actually sell the property, unless this mortgage is lifted for good. As it is generally equities that are actually exchanged, you, in reality, really sell, subject to your guarantee that interest and taxes will be paid by someone, in 1943 or 1948, or any other time within the extended life of the mortgage you were obliged to renew. Application of this idea to the stock market would undoubtedly bring operations to the ultimate minimum. Also, there is no medium for an owner to either get a legitimate adjustment in either principal or interest, and the net result of home ownership, too often, is personal bankruptcy.

Elaboration of the taxation system and its effect in suppressing building needs no comment here.

Building restrictions are a very potent barrier to progress. Designed to "uplift" the standards, the general effect is to prevent. The economic cost to the country as a whole of the increased cost of living imposed on a manufacturing centre by high cost housing, is tremendous. The idea that a town or city council may indirectly increase the cost of manufactured necessities of life to the consumer within and outside their jurisdiction is almost the same form of Hitlerism which we find ourselves at war with today.

It is said that Toronto is the only city in the world where one cannot build a frame dwelling. Other municipalities, too lazy, or indifferent to study the situation, docilely follow the leader. Although the evidence proves conclusively that the brick or stone dwelling is a much greater fire hazard than the equivalent frame dwelling, we are obliged to spend more money in the construction of a home than is justified, merely to satisfy the personal opinions of our building departmental heads. One such "Head," under pressure, finally admitted to the undersigned that "he did not like the appearance of frame buildings" and that this was sufficient reason for their elimination.

The general effect of the Sales Tax was to suppress mass production, efficiency, and co-ordination of building construction. Anything created in a factory was, and to some extent still is, taxed. Thus the uneconomical and poor construction was actually bonused by our Government.

This is but a thumb-nail sketch of the obstacles in the way of building recovery in Canada. An idea of the value of the obstacles may be gleaned from statistics, which indicate that Canada trails the civilized world, including Germany, in the relative volume of building. There was more building done in 1929 than in the whole of the past six years. So far as numerical strength is concerned, the practical home builders are rapidly dying out.

How can there be any economy, co-ordination, or co-operation when the entire weight of financing, laws and by-laws are entirely destructive thereto?

V. G. MOORE

Toronto.

As Others See Us . . . . .

Born in Priceville

Owen Sound Sun-Times

The Financial Post in a recent issue pays a deserving tribute to Hector B. McKinnon, of the Department of Finance at Ottawa, and the man who is considered the tariff expert of the Government.

Mr. McKinnon, well known as a newspaperman before entering the service of the Government, is a native of the village of Priceville and a graduate of the Owen Sound Collegiate Institute.

Other People's Views . . . . .

No Conscription Law

Le Canada

The War Measures Act authorizes the Canadian Government to protect its territory and confers wide powers for this purpose. But it in no wise authorizes the imposition of obligatory military service. It is not a conscription law, and it has no connection with the Conscription Act which was adopted in 1917. This conscription law became a dead letter at the end of the last war: it is no longer inscribed on the statutes of Canada.

The Minister of Justice, Mr. Lapointe, explained clearly to the members who recently asked for the abrogation of this legislation that abrogation was impossible because the conscription law no longer existed, having expired of itself. We are insisting upon this distinction to calm wherever it is needed the alarm of those pusillanimous people who, at sight of our Montreal soldiers, keep on saying: "In case of conscription . . ."

Stop Me If . . . .

"Where are some good places to stop on this trip?" asked the prospective automobile tourist.

"At all railroad crossings," replied the clerk in the tourist bureau.

Week in Business

Business G… For Fre…

Precedents of 1914 Exp… and Wheat Pri… Ca…

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For one thing, business has th… what happened then. It knows … thing; that the country did no… war demand made itself felt, b… the stock exchanges of the co… greater feeling of confidence.

In addition to this, however… been surveying the possibilities… plans have been made for adjus… Already some plants are workin… ment. So far, the number of orc… small. Much depends on the … future, if Canada is to experien…

Meanwhile and speedily the… meat and base metals should r… supplies for the millions of me… prise makes itself felt. Alread… advances.

Exporters and importers wi… conditions on the seas. While … goods to and from Canada is … difficulties in the way. Insuran… increase. But it is hoped that th… among the public at large. Th… expected to have the same resul… learned either to obtain essent… stitutes.

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Busine…

Current business marking ti… D. B. S. index of business for w… **ended Aug. 26** down slightly fr… previous week, but fraction… above last year.

Employment index as at Aug… 1, higher than month before a… 1938.

Carloadings for week ended Aug. … 26 higher than year ago. Cumula… tive for year to date, down 0.…

Construction contracts awar… in August 16% higher than Aug…

Commodity prices	
Weekly index	
Financial Post index	
Retail index no. of sales	
Dept. store "	
Wholesale "	
Country (% change fr. last yr.)	
Employment D.B.S. Index—	
All industries	
Manufacturing	
Wage earners, No. (000)	
Living costs†	
Railways—	19…
Carloadings, week (Aug. 26)	45…
C.N.R. gross, week (Aug. 21)	$ 3.37…
C.P.R. gross, week (Aug. 21)	$ 2.83…
C.P.R. net revenue (July)	$ 62…
C.N.R. net revenue (July)	$ 421…
Iron and Steel (July)—	
Pig iron production (tons)	5…
Steel ingots and castings prod. (tons)	11…
Automobiles (Number)—	
Passenger Cars:	
Domestic sales* (July)	
Factory output (July)	
Trucks and Buses:	
Domestic sales* (July)	
Factory output (July)	
Exports (July)	
Financing (July):	
Used	$ 3.68…
New	$ 2.29…
Construction—	
Contracts awarded (Aug.)	$+25.32…
Cement, bbls (May)	35…
Agriculture—	
Flour prod., bbls. (July)	+1.10…
Flour exp., bbls. (July)	40…
Wheat exp., bus. (July)	13.78…
Cattle sales (July)	8…
Hog sales (July)	4…
Sea Fisheries: (July)‡	
Catch, cwts.	1.28…
Landed value	2.08…
Newsprint (tons)—	
Production (July)	22…
Exports (July)	20…
Mining and Oils—	
Coal prod., tons (June)	1.07…
Coal imports, tons (June)	1.37…
Gold prod., fine oz. (June)	13…
Nickel prod., lb. (June)	20.10…
Copper, prod., lb. (June)	54.83…
Crude oil prod., bbls. (June)	321
Crude oil imp., bbls. (June)	4.43…
Electric Power Output (July)—	
Total monthly m.k.w.†	2.20…
Foreign Trade—	
Imports (June)	$ 83.1…
Exports (July)	$ 91.72…
Other Industrial Factors—	
Dressed lumber exp.:	
M. bd. ft. (July)	183…
Shoes, prod., pr. (June)	1.89…
Cotton imports, lb. (June)	13.09…
Raw rubber imp., lb. (June)	5.42…
Cigarette cons. (July) No.†	67…
Sugar manufactured, lb.‡	85.83…
Finance—	
Bank debits (July)†	$ 2.37…
Bond sales (July)	$ 71.44…
Life insurance (July)	$ 32.24…

*D.B.S. All Canada figure compri… †000's omitted. ‡For four … ‡Unrevised figures covering N.S.…

GENERAL … L…
Manufacture al… item of Metal Ha… Enameled Utensi… tors, and
McCLA…
FOOD SERV… For Hotels — R…
Montreal, Toronto, Londo…

In the Mail . . .

Cutting Housing Costs

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Week in Business

Business Girds Loins For Fresh War Effort

Precedents of 1914 Expected to be Valuable — Copper and Wheat Prices Rise — Banks Not Calling Loans

The uncertainty is ended.

Once more Canadian business is faced with the necessity of adjusting itself to war conditions. This time, however, it should be better prepared than in 1914.

For one thing, business has the precedents of the past to go by. It knows what happened then. It knows that the bottom did not fall out of everything; that the country did not go bankrupt; that eventually, when the war demand made itself felt, business became really good. The fact that the stock exchanges of the country have kept open is evidence of the greater feeling of confidence.

In addition to this, however, Canadian businessmen have for months been surveying the possibilities if war did come. In some cases, tentative plans have been made for adjusting plants to the production of munitions. Already some plants are working on orders for airplanes and other equipment. So far, the number of orders received, however, has been relatively small. Much depends on the business that is placed in the immediate future, if Canada is to experience a minimum of business discomfort.

Meanwhile and speedily the raw materials of Canada such as wheat, meat and base metals should meet an increased demand as the need of supplies for the millions of men now withdrawn from productive enterprise makes itself felt. Already wheat and copper have shown sharp advances.

• • • •

Exporters and importers will, of course, be affected by the changed conditions on the seas. While actual interference with the movement of goods to and from Canada is not expected to be serious, there will be difficulties in the way. Insurance rates have already jumped. Costs will increase. But it is hoped that this will be offset by increased buying power among the public at large. The cutting off of German supplies is not expected to have the same result as in 1914. Canadian manufacturers then learned either to obtain essential supplies elsewhere or else to use substitutes.

Recruiting for the military and naval forces should shortly result in increased spending power among a considerable part of the population. In fact it is likely that the first stimulus to business from the war will come from those unemployed men who have been on relief now going on the army payroll at $1.30 a day. If married they will, in addition, get separation allowance. This money will not be reflected in demand for men's clothing but rather in buying of women's and children's wear, foods and household supplies. The supplying of new uniforms and equipment for the men should, however, make itself felt in clothing factories and boot and shoe plants.

• • • •

Canadian chartered banks are doing their part to keep business on an even keel. Business as usual, were the words used by several bankers in conversation with the writer. Loans are being made on good security as formerly, while there is no disposition to call or reduce loans. The banks' position as shown by the last monthly statement is strong in cash and liquid securities. It is evident that they are well prepared for either a period of stress or a period of expansion.

Business Indicators

Current business marking time. D. B. S. index of business for week ended Aug. 26 down slightly from previous week, but fractionally above last year.

Employment index as at August 1, higher than month before and 1938.

Carloadings for week ended Aug. 26 higher than year ago. Cumulative for year to date, down 0.4%.

Construction contracts awarded in August 16% higher than August last year. Total for eight months up 6%.

Flour production for seven months up 23% from 1938.

Retail sales in July small decline from June but remain above July 1938.

Country store sales in July 6.2% below last year.

Trend of business shown by The Financial Post Business Index and following key factors, new items for the week being marked thus ▲.

	Aug. 26	Aug. 19	Aug. 12	Aug. 5	Aug. 27/38
Commodity prices	72.7	71.9	72.1	72.3	75.1
Weekly index	108.1	108.3	107.7	108.3	107.4
	July	June	May	Apr.	Year Ago
Financial Post index	▪119.7	118.8	116.3	113.2	100.0
Retail index no. of sales	▲83.5	85.0	80.8	79.0	80.3
Dept. store "	....	72.0	75.2	75.7	74.4
Wholesale "	▲92.2	99.3	101.4	97.1	90.1
Country (% change fr. last yr.)	▲—6.2	—7.7	—2.8	—12.6	....
Employment D.B.S. Index—	**Aug. 1**	**July 1**	**June 1**	**May 1**	**Year Ago**
All industries	▲117.5	115.8	113.1	106.2	112.1
Manufacturing	▲112.8	111.3	111.4	108.4	110.1
Wage earners, No. (000)	....	....	▪2,385	2,229	2,338
Living costs▲	....	$16.92	$16.92	$17.02	$17.45
			Jan. 1 to date		%
Railways—	**1939**	**1938**	**1939**	**1938**	**Change**
Carloadings, week (Aug. 26)	▲54,384	53,363	1,492,274	1,499,038	—0.4
C.N.R. gross, week (Aug. 21) $	3,374,723	3,370,391	113,722,240	106,785,191	+6.5
C.P.R. gross, week (Aug. 21) $	2,636,000	2,617,000	81,339,000	80,006,000	+1.6
C.P.R. net revenue (July). $	626,160	507,337	5,977,503	3,188,365	+87.4
C.N.R. net revenue (July) . $	▪214,927	▪96,956	▪290,490	▪5,776,941	....
Iron and Steel (July)—					
Pig iron production (tons)	59,587	51,238	356,108	455,396	—21.8
Steel ingots and castings prod. (tons)	111,149	83,927	691,290	754,267	—8.3
Automobiles (Number)—					
Passenger Cars:					
Domestic sales* (July) ..	5,820	6,187	60,228	67,012	—10.1
Factory output (July) ..	5,112	5,273	75,089	81,375	—7.7
Trucks and Buses:					
Domestic sales* (July) ..	2,057	2,067	15,545	17,637	—11.9
Factory output (July) ..	4,023	3,734	27,810	29,790	—6.6
Exports (July)	4,540	4,760	39,610	39,731	—0.3
Financing (July):					
Used $	3,669,707	3,748,860	21,709,955	23,452,665	—7.4
New $	2,391,445	2,719,524	17,846,861	22,945,114	—22.2
Construction—					
Contracts awarded (Aug.)	▲$25,827,200	22,113,400	131,402,800	123,926,800	+6.0
Cement, bbls (May)	550,890	545,710	1,267,776	1,418,414	—10.6
Agriculture—					
Flour prod., bbls. (July)	▲1,105,502	928,722	7,927,853	6,439,851	+23.1
Flour exp., bbls. (July)	402,377	282,985	2,626,675	1,934,316	+35.7
Wheat exp., bus. (July)	13,790,554	7,248,115	65,094,021	33,031,978	+97.6
Cattle sales (July)	61,220	64,127	397,686	387,976	+2.5
Hog sales (July)	42,144	43,619	358,139	409,863	—12.6
Sea Fisheries: (July)‡					
Catch, cwts.	1,267,700	977,800	5,115,220	4,122,090	+24.0
Landed value	2,860,300	2,586,600	8,884,580	8,706,810	+2.0
Newsprint (tons)—					
Production (July)	227,630	202,546	1,568,684	1,462,417	+7.2
Exports (July)	200,173	206,826	1,415,291	1,304,122	+8.5
Mining and Oils—					
Coal prod., tons (June)	1,070,964	930,971	6,762,325	6,914,109	—2.2
Coal imports, tons (June)	1,371,651	1,617,744	3,865,946	4,977,731	—24.3
Gold prod., fine oz. (June)	436,763	393,211	2,492,443	2,220,070	+12.3
Nickel prod., lb. (June)	20,103,880	16,327,169	110,314,754	108,985,141	+1.2
Copper, prod., lb. (June)	54,581,859	48,489,838	296,468,599	292,048,917	+1.5
Crude oil prod., bbls. (June)	821,308	537,654	3,371,238	2,919,425	+15.4
Crude oil imp., bbls. (June)	4,437,800	3,931,500	14,191,314	13,451,208	+5.5
Electric Power Output (July)—					
Total monthly m.k.w.f	2,204,965	1,987,774	15,947,968	14,706,151	+8.4
Foreign Trade—					
Imports (June) $	63,709,402	58,946,696	321,079,319	336,092,235	—4.6
Exports (July) $	91,727,627	78,719,799	558,989,882	494,399,446	+13.0
Other Industrial Factors—					
Dressed lumber exp.: M. bd. ft. (July)	185,096	165,910	1,114,,950	922,002	+20.9
Shoes, prod., pr. (June)	1,850,673	1,714,770	11,249,771	10,946,853	+2.7
Cotton imports, lb. (June)	15,309,000	9,546,000	53,564,000	64,106,000	—16.4
Raw rubber imp., lb. (June)	5,427,972	7,264,000	30,625,375	25,345,374	+20.8
Cigarette cons. (July) No.†	677,112	636,703	3,970,3296	3,870,561	+2.5
Sugar manufactured, lb.‡	85,537,820	86,266,450	387,788,743	370,140,908	+4.7
Finance—					
Bank debits (July)† $	2,376,328	2,466,370	17,509,832	17,051,439	+2.6
Bond sales (July) $	71,449,665	98,451,124	867,519,926	725,553,361	+19.5
Life insurance (July) $	22,244,000	20,535,000	224,767,000	224,467,000	+0.1

*D.B.S. All Canada figure comprising over 90% of the Canadian total.
000's omitted. †For four weeks to July 15, 1939. ▪Deficit.
‡Unrevised figures covering N.S., P.E.I., N.B., Que., B.C. ▪Preliminary.

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MANAGING DIRECTOR

John C. Hussey, who was recently elected vice-president and managing director of the Royal Typewriter Co. of Canada, after 16 years with the Royal organization, most of the time in developing foreign markets. Mr. Hussey announces that the new Royal factory now being built in Montreal will be ready for occupancy next month.

Power Group Output Higher

Southern Canada, Winnipeg Electric Report Gains

From Our Own Correspondent

MONTREAL.—Electric power consumption, a major barometer of business activity, continues to increase.

Latest example is Power Corp. of Canada's subsidiary and affiliated companies, which report output in July of 192.9 million kw.h., against 186 million kw.h. in the same month last year. An 8.7% increase by Southern Canada Power was the feature of the report.

For the seven months' cumulative output by the companies, which operate in five different provinces, gained 9% over the corresponding period of 1938. Total production for the period was 1,471 million kw.h. against 1,348 million kw.h. last year.

For the seven months period Winnipeg Electric reports the biggest gain over last year at 16%, while Southern Canada Power was ahead by 10.8%. East Kootenay Power was down 8.8% for the period.

Jamaica Public Service Earnings Trend Upward

From Our Own Correspondent

MONTREAL. — Jamaica Public Service reports a consolidated gross income of $24,736 for July compared with $21,549 a year ago. After interest and amortization, net income was $16,264 against $13,186 in July, 1938.

Cumulative returns for the twelve months ended July 31, 1939, showed gross income of $309,920, as against $287,891, a gain of $22,028. Net income for the twelve month period was up $24,778 to $209,216.

Maritime Tel. & Tel. Co. Toll Traffic Increases

From Our Own Correspondent

MONTREAL. — Completed long distance toll traffic on the Maritime Telegraph and Telephone Co. in July had a small increase over the corresponding month of last year. In all there were 135,086 calls handled, as against 134,584 a year ago.

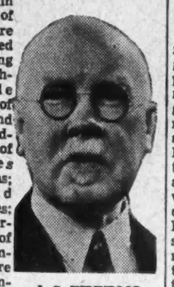
The Island Telephone Co., a subsidiary, reports 16,219 long distance calls in July, as against 15,419 a year ago.

Keeping Posted

Veteran Business Commentator Shares His Wide Reading With Businessmen

By J. C. KIRKWOOD

From the Federation of British Industries, London, has come to me the 1939-40 Register of British Manufacturers, a volume of over 700 pages. The main contents of this book are a classified section listing an astonishingly wide variety of products and services; addresses of companies and firms; brands and trade names; and advertisements of F.B.I. members. There are three introductory articles—"In Praise of English Cooking;" "Town and Country Planning," in two parts, one on zoning land for industry, and one on the selection of a factory site; and an article on electricity, "greatest servant of man, and itself unknown."



J. C. KIRKWOOD

This present issue is the 19th. This book has a very special interest for me, for the production of the first issue was entrusted to me. In 1919 I went to England, on the authorized invitation of a good friend of mine connected with the Federation—the man who had conceived this book. It fell to my lot to devise the size and manner of the book, and to supervise its preparation from first to last. This work occupied a year and a half of my time.

In regard to the selection of a factory site, the main factors which influence manufacturers are stated to be: raw materials, suitable labor, markets, transport, proximity to similar factories, sites, services, and finance. One authority says that the economic factors of transport and market and labor supply are the controlling influences in the selection of sites.

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Easy Come — Easy Go

A church shed can be a salesman. "What led you to become a Presbyterian?" I asked a farmer who used to go to church in a horse-drawn vehicle.

"Well," he said, "the Presbyterian church had a good shed, and when the Methodist church in my town tore down its shed, I went to the Presbyterian church. I wasn't very religious anyhow."

This man—now retired—doesn't go to church in the summer.

"The minister takes a holiday," he said, "so why shouldn't I take one, too?"

• • •

Used Plumbing

Crane Ltd., makers of sanitary equipment, has a full-page advertisement in the August issue of Sanitary Engineer, headed: "Congratulations to Sanitary Engineer." This trade newspaper is making a vigorous fight against the importation into Canada of used plumbing and heating fixtures which have been "junked elsewhere as being unfit for human use."

"It is nothing short of ridiculous," says Sanitary Engineer, "that Canada should become a dumping ground for discarded plumbing and heating materials from the United States, which cannot find a market in that country. Canada is in the ignominious position of pandering to cheap builders, to foreign jobbing houses which are springing up like mushrooms as outlets for such materials, and to the handyman type of installer."

Every person buying plumbing and heating equipment for installation in his own house should, undoubtedly, take precautions against secondhand and discredited materials—which means, of course, that he should do business with reputable firms.

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Compulsory Health

The day seems to be coming, and rapidly, when Canadians will have good health wished on them, compulsorily, by a benevolent government. At any rate this is a fast-growing belief. In its report of the recent annual convention of the Canadian Pharmaceutical Association, in Halifax, Drug Merchandising says that "the question of state medicine and health insurance reared its head with renewed vigor, dominating the discussion at business sessions." Dr. H. B. Atlee, one of the convention speakers, said: "As the drug business has changed, so has the practice of medicine, and we are now on the point of a revolution."

Dr. Atlee went on to say that the masses of the people can no longer afford to have the proper medical attention; that the situation has become so acute that some immediate solution is absolutely necessary; and that some form of government scheme seems to be the only logical solution. "If it does not come," said Dr. Atlee, "it will amount to a national calamity."

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Distribution Costs

Retail distribution costs tend to rise rather than fall—this despite earnest efforts to lower them. The explanation is, the consumer's increasing demands for services. The average overhead or operating expenses of certain classifications of retail establishments for 1938, as set forth in the Annual Fall Buying and Directory Number of Hardware and Metal, expressed as a percentage of sales, was 37% for department stores (as compared with 26% in 1920); 32% for large chain store organizations and 31% for small chain store organizations. By way of contrast, the operating expenses of independent hardware stores was 22% (as compared with 21.1% in 1924).

It is to be pointed out that there is little evidence that general high profits are being made in the field of distribution considered as a whole. Most of what distributive agencies receive for their services goes for wages and salaries of workers directly employed by distributive agencies. Distributors have little or no control over many of the ultimate real costs of distribution.

Taking into consideration both the profitable and the unprofitable, the net profits of those engaged in distributive enterprise amounts to but little more than 2% of their sales.

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Dramatic Trucks

R. H. Ormand, plumbing and heating engineer, Nanaimo, B.C., makes motor trucks talk—this in a manner of speaking—with quite a large voice. He has five motor trucks, and these trucks, headed by one or two of Mr. Ormand's private cars, constitute a unit in all street parades in cities in British Columbia where he operates. On one occasion, a truck had erected on it a completely-equipped bathroom (not dramatized, however, by any nudist bather). Two trucks showed ranges; another an oil-burner, with a hot water heating tank. The trailer truck showed a workshop, fitted with tools and ladders.

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Flying Executive

Kenneth C. Irving, operating a network of bus and truck lines in New Brunswick and Prince Edward Island, with base at Saint John, N.B., is believed — so says Bus and Truck Transport—to be the only transport head in Canada who owns and uses a plane for business travel exclusively. Mr. Irving himself is not the pilot, but employs one. His passenger and freight lines cover every county in New Brunswick and Prince Edward Island.

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Rebuilding a Business

Businesses die even as men do, and often for identical reasons—old age, heart failure, anaemia, tuberculosis, hardening of the arteries, by way of example. Yet dead businesses can have resurrection or rebirth. Let me tell, for illustration, of the great Amoskeag Manufacturing Company of Manchester, N.H. I found the story of the death and rebirth of this business in a book, "Our Town's Business," by Omar and Ryllis Goslin, published by Funk & Wagnalls.

The Amoskeag Manufacturing Company had in 1920 an army of 20,000 workers, and made 5 million yards of cotton or woollen cloth every week. Its great buildings stretched for miles along the banks of the Merrimac River. The weekly wages to operatives totalled $100,000. "Then Amoskeag closed. What is the history of this ghost? It is important to know," say the authors of "Our Town's Business.

"In the first place," they go on to say, "the owners of Amoskeag refused to install up-to-date machinery. Secondly, the company adopted a ruthless labor policy in its attempt to meet the competition of southern mills. Still another factor was a decided shift in the public's use of cloth material: the introduction of rayon cut deep into the possibility of sales."

Then there is the heartening story of the salvaging of this ruined business.

A Citizen's Committee of Manchester was formed, and it acquired 6,800,000 square feet of manufacturing space. There are now 60 concerns located in the former Amoskeag holdings, with 3,500 employees and an estimated payroll of 3 million dollars. "In this dramatic story," say the authors, "we see the difference between owners with and without responsibility."

Unhesitatingly I recommend the book, "Our Town's Business" to The Post readers. It is a book unlike any other that I have ever seen. It is readable, informative, stimulating. Every municipality should possess this book, for it is for municipalities wanting more industries and to make themselves conscious of their visible and potential assets, that this book has been prepared for them chiefly.

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Salesman in a Kilt

I am wondering if Archie Macfarlane, Macfarlane & Company, sales representatives, Montreal, when he was a commercial traveller, called on his customers clad in a kilt. Mr. Macfarlane was presented with an oil painting of himself by wholesale hardware firms in Ontario and Quebec at a recent luncheon gathering, and this portrait shows him, a braw figure, in full Highland attire. In his reminiscences as given at this luncheon, Mr. Macfarlane reviewed his 36 years of identification with the hardware trade of Canada.

My wonder has warrant, for the report of this luncheon meeting and presentation in Hardware and Metal ends with these words, "Archie may well be described as one of the most colorful manufacturers' representatives in the trade." It is that word, "colorful," along with the reproduction of the portrait showing Mr. Macfarlane in a kilt, that set me wondering.

Municipal Minister Says Taxation Limit Reached

Taxation in Canada has reached its limit in relation to the national income and further increases can only result in contraction of income because of increased production costs and a weakening of the nation's position to compete in world markets, Hon. Eric Cross told the Union of Nova Scotia Municipalities at Bridgewater last week. Mr. Cross was unable to attend the meeting, but his paper was read to the members of the Union.

Suggestion that the provinces undertake more thorough supervision over municipalities was made by the Ontario Minister of Municipal Affairs.

Guard Municipal Credit

"The province has a responsibility in its relationship toward its municipalities," Mr. Cross declared, "to preserve their credit, to guard their solvency and, wherever possible, to prevent insolvency. Behind this is sound reason, because the insolvency of one or more municipalities affects municipal credit as a whole."

The province should not permit municipal credit to be impaired by an inefficient administration, Mr. Cross declared. "But I am convinced that the provinces should set up effective control over the incurrence of municipal debt in some such manner as has been done in the Province of Ontario.

The limit in municipal taxation has been reached, the minister said. Property owners cannot and will not pay more taxes on real estate than it is profitable to pay. It is the responsibility of the province to see that real estate is not overburdened with taxation.

Cost of Intangibles

Mr. Cross thought it unjust that the costs of intangibles, such as education, hospitalization, social welfare costs, etc., should have been placed upon real estate. In Ontario the Government had taken off some of this burden by assuming costs of old age pensions, mothers' allowances, increasing municipal road subsidies, hospitalization of tubercular indigent patients, etc. The total thus taken from real estates resulted in a reduction of approximately 10%.

By assuring taxpayers that farm or home ownership is attractive and profitable through reasonable taxation, the provincial government is living up to its responsibility, he said.

East Kootenay Power Net Lower During July

From Our Own Correspondent

MONTREAL. — East Kootenay Power Co., subsidiary of Power Corp. of Canada, reports a gross income in July of $44,336, as against $45,642 in the same month a year ago. Operating expenses show an increase of $614, leaving net earnings of $29,396, or $1,920 less than in July, 1938.

Cumulative returns for the four months ended July 31 show a gross revenue of $175,182, or $10,687 less than in the corresponding period a year ago. Operating expenses were reduced by $1,548, leaving net earnings of $114,910. This represents a decline of $9,139 from the like returns for last year.

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Can. Westinghouse Reduces Dividend

October 1 Payment to be 37½c Against 50c Quarterly

A dividend of 37½ cents a share has been declared on the common stock of Canadian Westinghouse Co. Payment will be made Oct. 1, 1939, to shareholders of record Sept. 20.

The previous quarterly rate has been 50 cents a share since 1932 and for the years 1930 and 1931, $2 a share was paid annually, plus $1 a share as a bonus.

Although no official word has been received recently it is thought that the lower dividend probably reflects continued lower sales. For the first three months of this year, sales were officially stated to have been moderately lower than for the first quarter of 1938, but that hopes were entertained that improvement would be noted before long. One project that has been postponed and from which the company had hoped to get good volume of business is the new strip mill for Steel Co. of Canada.

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ADDRESSOGRAPH SALES AGENCIES IN PRINCIPAL CITIES

Insurance

Ownership of Property Has Responsibilities

Businessmen and Householders Liable for Damage Claims from Many Causes Beyond Their Control — Public More Claims Conscious

Canadian people generally take a pride in owning property whether it be used for residential or business purposes. They often overlook, however, that wealth, great or moderate, brings with it liabilities which if not provided for, may result in heavy losses.

In spite of all the precautions which the owner of a piece of land or a building may take, accidents may still occur. People injured often make claims for damages. These are almost certain to result in expense to the property owner. If he resists the claim and it is taken to court there are legal expenses to be met. If the case goes before a jury, it is stated the decision, in the majority of cases, is for the claimant.

The possession of property, rightly or wrongly is usually interpreted as indicating a certain amount of wealth, and juries often let their sympathies run away with their judgment in such cases. In addition it is to be remembered that while precedent counts for a good deal in decisions by a judge, juries may differ in their judgment on cases where the circumstances are practically identical.

Owner Often Blameless

The records are full of instances where owners or tenants of property have had claims made for damages sustained by others which, while caused in some cases by their own carelessness, are often due to causes beyond their control.

Some youngsters recently playing in a good residential section of an eastern Canadian city, wandered into a large apartment house. One of them eating a banana dropped the skin on the floor of the polished entrance. A lady coming in shortly after from the sunlight of the street, stepped on the peel, slipped and fell. The owner of the building has been notified that she sustained serious injuries, and that she is holding him liable for damages. Unless he settles to her satisfaction he is threatened with legal action.

A trivial oversight or mishap in an industrial building often results in a suit for damages. Open trapdoors, unprotected manholes, defective gratings, broken stairways, unprotected machinery, sliding snow and ice are often the cause of accidents and in many cases the owner is called on to pay.

A man entering an elevator when the floor of the car was an inch or two above the regular floor level tripped and pitched forward, doing himself considerable injury. The result was a claim for damages.

Eating Houses

Restaurant keepers are also liable in various ways. In a recent court decision it was shown that Mr. A. and his wife in the course of a motor journey had stopped for lunch at a hotel owned by Mr. B. Owing to the nature of the food supplied, Mrs. A. was taken ill with food poisoning. Action was brought by her based on the contention that when the order for the meal was given by the wife and accepted on behalf of the restaurant, it constituted in reality a contract with the implied warranty that the food supplied was fit for human consumption. The court agreed that such an implied contract existed and that the wife was entitled to recover for any breach of the implied warranty.

A decision in England which considerably widened the limitations on liability for damages caused by shock is of considerable interest especially to operators of vehicles, and might be used as a precedent in this country.

A funeral procession was passing along the street in Liverpool when a street car negligently driven by a city employee collided with the hearse, broke its glass side and overturned the coffin, so that there was danger of it being thrown into the road. The relatives of the deceased were following immediately behind the hearse. One of them actually saw the collision. The others saw its effect immediately after it happened. They claimed damages for severe shock and one, the mother of the deceased claimed damages for shock and collapse.

At the first trial, the court found that while the plaintiffs had suffered injury by shock, there was no apprehension or actual sight of injury to a human being. The case was appealed, however, and the Appeal Court found that there was no limitation in law as to whether there was apprehension of injury to a human being or not.

It was held that anyone doing a negligent act runs the risk of giving a sensitive person a shock, and so long as injuries from shock can be proved by medical evidence, the doer of the negligent act is liable for damages.

A very simple case was one in which an operator in a beauty parlor curling a woman's hair burnt the customer on the neck leaving a scar. The result was a lawsuit.

Residence Liability

Cases of claims for damages against householders are just as numerous.

A charwoman turned the porcelain tap in a bathroom too hard and it broke, cutting her hand. Blood poisoning set in. The result was a claim for $390.

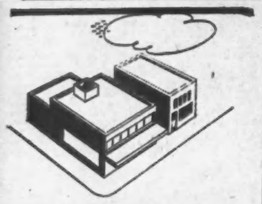
A domestic servant taking in washing from a clothes line fell from a gallery and suffered certain injuries. She made a claim for $900.

An old-clothes dealer calling at the back door of a house leaned his weight against the railing around the platform which gave way. He fell into the yard below and injured his back. He claimed $5,000 damages.

There are a number of public liability contracts offered by the various insurance markets which provide protection for the property owner in event of such cases happening. These contracts will:

1. Defend actions brought against the property owner whether these actions are groundless or not.
2. Pay judgment of stated amounts, in event of an adverse decision by the courts.
3. Pay all costs and expenses incurred with the company's written consent.
4. Pay all expenses incurred in providing such immediate medical and surgical relief as is necessary at the time of accident.
5. Relieve the policyholder of trouble and expense up to the limit of the policy.

Since the depression, there seems to have been a growth of claims-consciousness among the Canadian people. These claims have to be met whether they are later shown to be groundless or not. Insurance in such cases helps.



SELECT PROPERTY
is Worthy of
SELECT COMPANY

If your property conforms to the highest standards of fire protection, it is entitled to the benefits of association with other select fire risks.

Northwestern Mutual policyholders enjoy liberal annual dividends because they have reduced their annual fire losses below those of the average company.

NORTHWESTERN MUTUAL FIRE ASSOCIATION

Toronto, Hamilton, Ottawa, Halifax, St. John, Quebec City, Montreal, Moncton, Winnipeg, Saskatoon, Edmonton, Calgary, Kelowna, Victoria, Nanaimo, Vancouver.

Before You Insure Consult

Confederation Life Association

One of the World's Great Life Insurance Institutions. Renowned for Strength, Service and Security Since 1871.

United States Fidelity & Guaranty Company
TORONTO

THE WAWANESA Mutual Insurance Co.

Assets $2,234,188.78
Surplus 1,057,853.38

Head Office: Wawanesa, Man.
Eastern Office: Toronto, Ont.
Branches at Vancouver, Edmonton, Saskatoon, Winnipeg, Montreal and Moncton

2,000 Agents Across Canada

RUBBER PRODUCTS

TRANSMISSION BELTING
THAT HAVE

ELEVATOR BELTING
PROVEN

AIR DRILL HOSE
THEMSELVES

CONVEYOR BELTING
IN ACTUAL USE

SUCTION AND DISCHARGE HOSE
OF QUALITY.

THE STAMP

GUTTA PERCHA & RUBBER, LIMITED

Branches Across Canada
HALIFAX ST. JOHN QUEBEC MONTREAL OTTAWA TORONTO LONDON WINNIPEG REGINA SASKATOON CALGARY EDMONTON VANCOUVER VICTORIA

Modern engineering requirements have necessitated the development of a huge range of new and improved materials of which the nickel alloys are most familiar to Canadians. Recently an important step was taken in this direction by Dominion Foundries & Steel Limited, Hamilton, when for the first time in Canada was rolled a special abrasion-resisting nickel-chromium steel plate, especially designed for mine equipment. To ensure the pouring of a sound ingot, "Defasco's" metallurgical engineer, seen at lower left, uses an optical pyrometer to measure the temperature of the molten metal.

Foreclosure May Solve B. C. Doukhobor Problem

From Our Own Correspondent

VANCOUVER. — Sun Life Assurance Company's move to foreclose the mortgage on lands now occupied by Doukhobors in British Columbia may be the means of ultimately solving one of the province's most difficult and complex racial and social problems.

The Sun Life's effort is being held in abeyance until Nov. 1 by which time it is expected that the provincial legislation will have taken action to settle the issue once and for all. Eviction orders were not effected because it was claimed, by police authorities, that riots and bloodshed would probably result. But the fact that an important organization such as Sun Life is behind the order is likely to influence the legislature in taking more definite action than it has in the past, despite a recurrence of bombings and other sabotage.

Sun Life seeks only to recover the amount of its mortgage account, which now stands at about $200,000, and it is willing to sell the property to the Doukhobor community for its individual members at the amount of the mortgage debt, plus only a reasonable charge to cover expenses. The present trouble, in the company's view, has been caused largely by a minority radical group which refuses to consider the purchase of the lands occupied, pay taxes, or to pay part of the community's operating expenses, and which threatens reprisals against any of the community who should purchase the lands. It is this radical element which the Sun Life sought to evict as a necessary preliminary step.

The original loan to the Doukhobors was made in 1913 to Peter Veregin. The amount borrowed was $250,000 and at that time the lands and buildings offered as security were valued at $1.7 million. Under the leadership of the original Veregin the community prospered, the loan was reduced, and interest payments were made.

Following Peter's death as a result of the bombing of the train in which he was a passenger, his successors in the management of the community got into financial troubles; dissension developed and separate groups were formed within the community which disputed among themselves and brought the affairs of the cult into disorder.

War Business Will Affect Fire Insurance Companies

Fire insurance companies in Canada expect that if the war lasts anything like as long as the last one, they will experience a considerable expansion in business.

Main reasons given for this belief are:

1. War always causes an increase in the general price level and will therefore increase the value of goods and materials on hand.
2. War orders will necessitate the carrying of heavier stocks of raw and semi-finished materials, which will have to be insured.
3. Ultimately there may be an upward trend in the values of industrial buildings while there may also be considerable number of temporary structures erected which also will have to be insured.
3. The inflammable nature of many of the commodities used in the manufacture of munitions and equipment is likely, it is felt, to increase the fire hazard, increasing the demand for insurance protection.

For some years, the fire insurance companies have found it difficult to increase their premiums.

Among the factors contributing to this situation has been the relatively low price level and the small inventories of goods carried. Now as indicated higher prices are a virtual certainty while industries and merchants feeling that active demand is assured for the various classes of goods will be ready to stock up again.

Even if rates remain where they are, the increased total value of insurable property will mean increased business for the companies.

In the last war as shown in the accompanying table the rate charged per $100 of insurance fell from $1.21 to $1.09. At the same time losses increased from $14 millions to $19 millions. Yet owing to the larger volume of premiums and a lower loss ratio, the net margin of premiums over losses increased to $16 millions from $12 millions.

Statistics of the experience of the last war in certain items are as follows:

Dominion Licensed Companies
(Thousands of dollars)

	1918	1913
Amt. of insur. in force Dec. 31	4,523,514	3,151,930
Net prems. received	35,934	25,745
Losses paid	19,359	14,003
Loss ratio (% of losses to premiums)	53.84	54.39
Aver. cost per $100 ins.	$1.06	$1.21

Exports of Wood Pulp Up Sharply for July

From Our Own Correspondent

MONTREAL.—Canada's July export of woodpulp rose to 1,033,995 cwt. from 849,116 cwt. in the previous month and 748,024 cwt. in the same month last year, according to a report released by the Dominion Bureau of Statistics. These exports represent a value of $2,297,450 compared with $1,925,282 in the previous month and $1,867,581 in July, 1938.

Hardware Mutual Group is Changed

Business and Territory Served Are Divided by Mutual Agreement

By mutual agreement, the group of hardware and implement mutual fire insurance companies which have operated in Canada and the United States under the name of Federal Hardware & Implement Mutuals will be discontinued effective Oct. After that date joint direct sale offices will be maintained in all territories by two of the former groups, the Hardware Dealers Mutual Fire Insurance Co. of Stevens Point, Wis., and the Minnesota Implement Mutual Fire Insurance Co., of Owatonna, Minn., under the name of Federated Hardware Mutuals. The sales organization of the Hardware Mutual Insurance Co. of Minnesota, of Minneapolis, Minn., will operate independently.

Under the new arrangement the Federated Hardware Mutuals will take over the existing business of the former association in the territories served by the Atlanta, Dallas, Owatonna, Boston, Stevens Point and Toronto offices. The existing business of the former association in the territories served by the San Francisco, Minneapolis and Newark offices will be taken over by the Hardware Mutual Insurance Co. of Minnesota. A reinsurance plan will be maintained between the three companies so that the distribution of liability will be virtually the same as under the former arrangement. The three companies will continue to co-operate with hardware and implement associations as in the past.

Insurance Notes

Mortality of the Metropolitan Life Insurance Co. in July was 6.9 per 1,000 compared with a previous record for July of 7 per 1,000, established in 1938. The record in June was also a record low for that month. The good showing for these two months brings the cumulative death rate for the seven months down materially from the rate for the first five months. Lower death rates have been established this year for tuberculosis, appendicitis, puerperal conditions and pneumonia.

• • •

J. W. Jermyn, for the past 10 years manager for the Manufacturers Life at Los Angeles, has retired on pension. He has been with the company for 17 years. Prior to entering its service, he practised law in Saskatoon. After establishing himself as a successful producer, he was appointed branch manager at Portland when the company entered Oregon in 1925. Four years later he was transferred to Los Angeles to establish the company in that city. He is succeeded in Los Angeles by G. N. Quigley Jr., who comes from Honolulu, where he has been manager of the life insurance department of the van Hamm-Young Co., representatives of the Manufacturers Life in that territory.

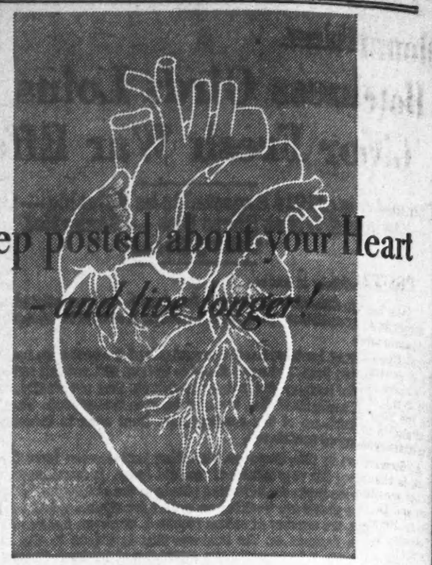
Insurance Problems

Carrying Gasoline

I make a practice of carrying a gallon of gasoline in the trunk of my car as an emergency reserve in case I run out of gasoline some time when far away from a service station. An insurance agent tells me this practice makes my automobile insurance policy valueless in event of fire. Please advise me if this is correct.

Unless there is some special provision on your policy it would appear that your agent has become confused between the conditions of a fire insurance policy on a house and the standard automobile policy. There is nothing in the statutory conditions of the standard automobile policy to this effect. We would advise you to read your policy over very carefully, however, to make sure whether there is some special condition attached or not. As a matter of general safety it would be advisable to make sure that you are using a proper container. Otherwise gases might generate in an air-tight compartment which would become easily ignited if a lighted cigarette were near and might even cause an explosion.

Some say that carrying an emergency supply of gasoline in the trunk of the car might come under the statutory condition which requires any material change in the risk to be disclosed to the insurer. But there does not seem to be any legal decision on this point, and in the opinion of a number of insurers this clause would not apply.



YOU may feel as vigorous and healthy as ever. But if you have reached middle age you would be wise to have your heart examined from time to time.

Usually a person's arteries gradually harden as he grows older. This process is particularly serious when it affects those arteries on which the heart muscle itself depends for nourishment. If an artery in the heart hardens and thickens, its diameter narrows, clogging circulation and reducing the heart's vigor. In advanced stages this condition is known as arteriosclerotic or coronary heart disease. It sometimes occurs prematurely in persons in the fifties or forties, or even younger.

The men and women who make headlines with sudden death from heart disease are often those who didn't know anything was wrong with their hearts. In the earlier stages of heart disease a person may feel no pain—have no idea his heart isn't equal to any strain he might place upon it.

By the time definite heart symptoms appear, some damage has been done.

A sense of heaviness, oppression, or actual pain in the chest is the first warning many receive. So-called "acute indigestion," or a pain radiating to the shoulder, armpit or upper arm calls for immediate investigation. Shortness of breath during or after slight exertion may indicate heart trouble. On the other hand any of these symptoms may have a less serious origin. Your physician should decide.

As you and your heart grow older you may need to change your manner of living to avoid over-exertion. Work and play should be regulated so that you get enough but not too much physical exercise. Extremes of effort such as pulling, straining, and heavy lifting should be avoided if possible. Sufficient rest is of great importance. Keeping weight down to normal is also advisable to avoid a strain on your heart.

Thousands of men and women with heart disease are actively at work today because they followed medical advice.

The Metropolitan booklet "Protecting Your Heart" contains much valuable information for young persons and old. A post card will bring you a free copy. Address Booklet Department 9-F-39, Canadian Head Office, Ottawa.

Heart Disease under 40

While there is a variety of causes of heart disease in younger people, it is often a consequence of rheumatic fever. A child who suffers from swollen joints or muscle pains should receive prompt medical care. The "poison" of rheumatic fever may affect the valves and muscle of the heart, though it may be years before the damage is detected. Promptness in recognizing this ailment, proper medical treatment and aftercare may save the heart from serious injury.

Plan to visit the Metropolitan's Exhibits at The New York World's Fair and The Golden Gate International Exposition in San Francisco

METROPOLITAN LIFE INSURANCE COMPANY
NEW YORK

FREDERICK H. ECKER, Chairman of the Board — LEROY A. LINCOLN, President

CANADIAN HEAD OFFICE—OTTAWA

SERVING CANADA SINCE 1872

Fire Insurance and Allied Lines
AGENCY INQUIRIES INVITED
NATIONAL RETAILERS MUTUAL INSURANCE COMPANY

THE Dominion of Canada GENERAL Insurance Company
Established 1887
Fire Casualty Life

Position of Chartered Banks of Canada as of July 31, 1939, Shown by Monthly Returns to Minister of Finance

LIABILITIES — SUPPLEMENTARY INFORMATION

NAME OF BANK	Notes in Circulation	Deposits by and Bal. Due to Dominion Government	Deposits by and Bal. Due to Provincial Governments	Advances from Bank of Canada	Demand Deposits in Canada	Savings Deposits in Canada	Deposits Elsewhere	Bal. due to other banks in Canada	Due to Banks in U.K.	Due to Banks Elsewhere	Bills Payable	Letters of Credit outstanding	Other Liabilities	Dividends Declared and unpaid	Reserve Fund	Capital Paid Up	Total Liabilities	Capital Authorised	Capital Subscribed	Last Dividend	*Loans to Directors and firms of which they are Partners	Average Notes and Deposit with Bank of Can.	Greatest amount of Notes in Cir.
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	%	$	$	$
Montreal	21,247,962	23,763,848	15,283,747	.....	187,384,293	459,194,054	88,838,439	3,088,173	4,228,940	9,279,923	119,068	7,980,233	2,998,070	732,828	39,000,000	36,000,000	893,939,453	50,000,000	36,000,000	8	463,041	71,0-0,597	22,252,427
Nova Scotia	8,305,301	5,906,483	2,839,553	.....	44,011,959	154,019,652	51,002,025	3,389,514	354,979	1,882,763	25,791	5,473,311	36,100	8,240	24,000,000	12,000,000	313,313,686	15,000,000	12,000,000	12	2,990,455	22,454,000	3,548,554
Toronto	3,706,884	4,152,818	1,088,309	.....	●33,386,100	86,396,421	2,439,216	2,864,225	465,879	1,822,244	.....	1,129,859	.....	150,361	9,000,000	6,000,000	153,213,410	10,000,000	6,000,000	10	653,918	11,947,503	3,947,125
Provincial	2,748,500	286,408	1,558,271	.....	7,372,449	40,122,680	134,022	111	.....	3,222,370	.....	27,174	5,633	4,005	1,000,000	4,000,000	60,663,627	5,000,000	4,000,000	6	208,072	5,137,288	17,610,894
Commerce	16,065,799	8,041,369	13,325,122	.....	150,933,372	330,526,087	65,477,960	3,747,355	2,947,790	8,956,780	5,364	6,956,780	.....	811,622	20,000,000	20,000,000	647,584,190	50,000,000	30,000,000	8	1,354,961	46,855,477	26,708,718
Royal	25,208,388	14,876,600	14,974,712	.....	171,820,669	340,301,189	256,114,543	276,510	1,271,891	15,011,908	134,737	17,921,478	3,689	718,833	23,000,000	25,000,000	913,692,551	50,000,000	25,000,000	8	1,418,158	57,904,942	8,200,000
Dominion	5,145,231	2,096,120	2,249,980	.....	32,714,102	78,840,081	5,317,406	2,100,248	358,580	2,909,269	395,689	175,731	7,000,000	7,000,000	147,862,264	10,000,000	7,000,000	10	97,571	15,988,368	4,961,494
Nationale	4,797,069	1,966,948	678,070	.....	28,741,212	104,576,157	1,216,279	1,180,812	65,579	558,448	16,017	1,023,820	89,650	146,461	5,000,000	7,000,000	153,872,235	10,000,000	7,000,000	8	409,366	9,852,913	5,217,000
Imperial	5,150,300	4,000,954	10,789,110	.....	37,483,121	90,023,302	421,518	1,446,782	434,949	1,527,680	.....	1,327,093	.....	175,272	8,000,000	7,000,000	172,892,665	10,000,000	7,000,000	10	544,876	14,960,994	632,455
Barclays (Can.)	400,455	121,014	38,226	.....	3,320,107	9,940,486	5,451,326	767,260	2,954,573	2,407,324	.....	916,449	.....	.....	750,000	1,500,000	28,564,813	1,500,000	1,500,000	.....	8,234	1,906,313	.....
Total	92,855,769	64,928,562	63,379,809	.....	694,169,484	1,597,240,089	474,232,824	19,961,066	13,082,835	45,351,573	300,977	55,814,282	3,528,511	2,731,762	183,750,000	145,500,000	3,506,597,895	211,500,000	145,500,000	.....	8,118,062	258,807,295	97,353,967

●Of this amount, $33,337,706 represents deposits in Canada in currencies other than Canadian, carried under demand and savings deposits in Canada, prior to Aug., 1935. *And loans for which they are guarantors.

ASSETS

NAME OF BANK	Gold and Subsidiary Coin Held in Canada	Gold and Subsidiary Coin Held Elsewhere	Notes of Bank of Canada	Deposits with Bank of Canada	Notes of Other Banks	Govt. and Bank Notes other than Canada	Cheques on other banks	Balances due from other banks in Canada	Due by banks in U.K.	Due by banks elsewhere	Govt. sec. short term	Govt. sec. long term	Canadian municipal securities	Public sec. other than Can.	Other bonds and stocks	Call and short loans in Canada	Call loans elsewhere	Current loans Canada	Current loans elsewhere	Loans to provincial governments	Loans to municipalities	Non-Current loans	Real estate other than Bank premises	Mortgages on real estate	Bank Premises	Deposit for note circulation	Other assets	Total assets
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Montreal*	1,236,357	122,589	15,275,799	62,068,039	1,566,280	731,464	28,212,977	.....	3,728,136	56,716,710	158,291,838	211,963,756	34,142,562	35,589,158	30,853,383	3,003,218	17,984,579	166,319,194	13,414,179	2,993,847	41,454,588	1,653,452	584,341	833,553	13,232,308	1,127,794	1,808,212	894,699,962
Nova Scotia	366,450	1,567,082	4,224,076	19,237,748	534,452	7,717,828	10,166,407	33	4,243,763	14,210,155	34,977,987	73,950,366	12,327,575	434,597	12,542,079	3,939,121	2,364,032	85,220,388	15,569,363	361,521	5,027,513	498,295	.....	90,296	6,396,460	468,656	2,646,680	314,353,720
Toronto	254,014	.....	2,254,376	9,089,549	267,820	106,225	8,433,755	.....	48,532	10,835,641	7,831,190	32,923,414	6,081,966	.....	4,475,129	1,861,482	.....	40,506,541	.....	.....	5,471,730	230,466	.....	33,944	3,428,666	219,616	.....	165,453,572
Provincials	233,119	.....	1,719,108	2,845,762	286,815	89,195	2,248,934	893	9,214	374,873	8,406,287	6,226,648	13,707,530	.....	2,088,491	4,013,533	.....	13,167,622	.....	209,126	2,502,580	70,368	366,404	342,147	2,077,635	149,637	142,061	61,602,699
Commerce†	931,200	407,704	9,438,891	33,745,052	969,189	1,217,355	21,133,600	.....	3,066,556	23,474,397	95,160,455	121,476,347	9,365,483	29,623,850	30,032,401	12,564,908	9,422,440	192,282,715	24,347,135	6,925,782	21,932,875	2,957,878	2,549,473	1,268,511	14,713,212	907,000	4,364,635	670,407,116
Royal†	1,581,533	3,450,800	10,900,597	47,817,693	1,513,606	22,551,640	23,987,482	3,377	11,300,234	71,944,597	178,193,780	169,386,151	13,219,701	26,475,051	17,400,421	19,977,094	11,373,453	189,429,845	91,128,312	1,994,044	21,254,565	2,714,386	2,402,760	777,790	14,768,000	1,380,000	3,983,566	916,822,009
Dominion	302,111	429	2,370,046	12,314,422	466,450	165,243	5,346,376	.....	1,182,335	3,022,275	15,617,327	18,360,177	3,745,415	.....	2,924,349	3,401,917	2,538,348	48,405,902	446,587	.....	1,609,313	281,062	72,704	58,146	5,842,706	270,670	200,560	168,699,194
National	600,631	206	3,816,905	6,842,407	570,520	162,940	4,653,475	947,808	134,677	1,035,165	5,956,176	21,804,597	18,403,511	312,919	7,793,760	5,163,500	10,000	50,786,568	22,942	2,049,339	12,575,419	243,572	1,538,398	580,451	5,581,723	262,005	288,642	174,916,296
Imperial	386,548	.....	4,256,913	11,304,305	445,215	121,986	6,010,144	635,418	480,681	4,307,252	10,733,788	44,965,345	5,742,716	.....	66,165	5,194,433	.....	53,697,696	.....	580,723	7,939,582	351,599	186,187	355,933	5,946,769	295,998	137,972	24,577,353
Barclays (Can.)	2,702	.....	75,307	2,053,675	8,985	8,759	214,773	2,429,708	2,912,439	5,274,882	4,589,254	7,817,536	4,151	.....	.....	416,200	.....	1,074,982	.....	.....	8,551	.....	.....	.....	450,000	18,756	.....	24,577,353
Total	5,676,865	5,578,873	55,832,218	206,916,552	6,658,354	32,857,535	112,007,922	4,016,839	27,026,757	190,794,017	466,167,765	700,949,936	102,738,922	92,434,615	128,154,178	51,239,956	43,682,552	813,947,305	144,926,016	13,816,049	119,358,195	8,995,939	7,900,259	4,123,771	73,138,470	5,100,042	13,572,388	3,519,912,894

*The business of the Bank in San Francisco, U.S.A., is carried on under the name of a locally incorporated company and the figures are incorporated in the above Return.—Footnote to Bank of Montreal return.

†The Canadian Bank of Commerce (California) has been incorporated under the laws of the State of California to conduct the business of the Bank in that State and the assets and liabilities of the Canadian Bank of Commerce (California) are included in the above general statement.—Footnote to Canadian Bank of Commerce return.

†The Royal Bank of Canada (France) has been incorporated under the laws of France to conduct the business of the bank in Paris, and the assets and liabilities of the Royal Bank of Canada (France) are included in the above general statement.—Footnote to Royal Bank return.

†The assets and liabilities of the Banque Canadienne Nationale (France) same being considered a branch operating as a subsidiary of the Banque Canadienne Nationale, are included in above return.—Footnote to Banque Canadienne Nationale return.

●Total assets include $35,814,262 letters of credit outstanding as shown in liabilities.

Mount Royal Hotel Affairs Given Airing

Committee Asks Support Owing to Serious Position

PROTECT EQUITY

From Our Own Correspondent

MONTREAL. — Preferred and common shareholders of the Mount Royal Hotel Co. are being solicited by a general protective committee in a move to protect their equity in the event of a possible foreclosure by the first mortgage bondholders and also to bring about a change in the management.

A. Stewart McNichols, of Montreal, is chairman of the committee. Other members include W. G. Hanson and Dr. W. G. Reilly, Montreal; Percy Hermant and Andrew Parr, Toronto, and Isaac E. Pedlow, Renfrew.

In the letter sent out by the committee it was stated that some arrangement be made, if possible, with the Metropolitan Life Insurance Co. to prevent loss of the property and to obtain some relief in respect of the company's obligations under the mortgage and that "the present policy maintaining close association with the competitors is not in the best interests of the company and therefore should be changed immediately."

Highlights of Letter

Highlights of the letter sent to the shareholders follow:

"As has already been disclosed by the annual financial reports and statements submitted to shareholders in the past few years, your company, after allowance is made for depreciation and mortgage interest, has suffered successive heavy operating losses and the working capital which a few years ago was ample, sufficient to carry on the company's operations, has been reduced to such an extent that, as at Dec. 31, 1938, as shown by the balance sheet submitted to shareholders, current assets amounted in effect only to $269,306 while current liabilities were $589,011.

Mortgage in Arrears

"Installments of principal on the first mortgage held by Metropolitan Life Insurance Company on your company's property are in arrears to an aggregate amount of $360,000 and that the prescribed half-yearly installment of interest on that mortgage amounting to $97,900, which was payable on June 1, 1939, has not been paid. There was also as at May 31, 1939, an accumulation of other unpaid interest, making the total interest due and unpaid as at June 1, 1939, $190,221.

"Municipal taxes due and payable on Oct. 1, 1938, amounting to $116,060, are unpaid and the current year's taxes amounting to $115,520 will fall due on Oct. 1, 1939."

Change in Board

As another result of its investigations, the committee has come to the conclusion that the present policy of maintaining close association with a competitor is not in the best interests of the company and, therefore, should be changed immediately.

"In view of the foregoing, the committee has also come to the conclusion that a change should be made in the present board of directors of the company.

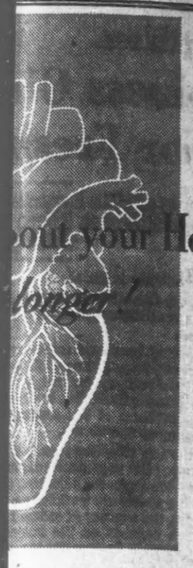
"The committee has been given to understand that the Metropolitan Life Insurance Company is seriously considering action to protect its position and is taking legal advice. If it should decide to enforce its rights, the property of the company, which is subject to the mortgage—that is to say, the land and buildings—would be brought to judicial sale. The committee considers that, in the circumstances, it is essential that some immediate arrangement be made, if possible, with Metropolitan Life Insurance Company to prevent the loss of the company's property and to obtain some relief for the future in respect of the company's obligations under the mortgage. The committee has had preliminary talks with officers of the Metropolitan Life Insurance Company and has reason to believe that some such arrangement is possible under certain conditions which would probably involve a change in the above-mentioned present policy with regard to a competitor and the raising of additional money by the company requiring a reorganization of the company's capital structure.

Outline Company's Stand

"Feeling that immediate action should be taken, members of the committee have interviewed the president and another director of the company to present the views of the committee and to request co-operation in the carrying out of the wishes of the committee and appropriate changes in the personnel of the board of directors. We regret to state that although two weeks have elapsed since we first interviewed the president, no action has been taken to conform to the committee's wishes. On the contrary, the president of the company advised the chairman of the committee on Aug. 29 that he did not consider the committee legally qualified to deal with this matter and that he felt answerable only to the board of directors.

Want Proxy Authority

"The committee, therefore, feels that, in view of the very serious position of the company, it is necessary that some action be taken as soon as legally possible to reconstitute the board by action of the shareholders. This action the committee hopes to be in a position to cause to be taken when the time comes if it can obtain substantial support from other shareholders. The proxies will not be used, however, to vote at any meetings of shareholders which may be called to submit to the shareholders any proposal of compromise or arrangement of their rights as the committee has now no desire to obtain any blanket authority from shareholders in respect of reorganization."



A sense of heaviness, oppression, or actual pain in the chest is the first warning many receive. So-called "acute indigestion," or a pain radiating to the shoulder, armpit or upper arm calls for immediate investigation. Shortness of breath during or after slight exertion may indicate heart trouble. On the other hand any of these symptoms may have a less serious origin. Your physician should decide.

As you and your heart grow older you may need to change your manner of living to avoid over-exertion. Work and play should be regulated so that you get enough but not too much physical exercise. Extremes of effort such as pulling, straining, and heavy lifting should be avoided if possible. Sufficient rest is of great importance. Keeping weight down to normal is also advisable to avoid a strain on your heart.

Thousands of men and women with heart disease are actively at work today because they followed medical advice.

The Metropolitan booklet "Protecting Your Heart" contains much valuable information for young persons and old. A post card will bring you a free copy. Address Booklet Department 9-F-39, Canadian Head Office, Ottawa.

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art disease in younger people, it is . A child who suffers from swollen ompt medical care. The "poison" of muscle of the heart, though it may Promptness in recognizing this ailaftercare may save the heart from

politan's Exhibits at
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ITAN LIFE
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LEROY A. LINCOLN
President

FFICE—OTTAWA

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Finance

	"Loans to Directors and firms of which they are Partners	Average Notes and Deposit with Bank of Can.	Greatest amount of Notes in Circ.
	$	$	$
	463,041	71,040,597	22,252,627
	2,990,465	22,454,000	8,338,536
	653,918	11,947,806	3,945,484
	208,072	5,127,395	2,247,125
	1,354,961	46,836,477	17,810,894
	1,418,158	67,904,943	24,709,718
	97,571	15,089,269	4,268,626
	409,366	9,882,813	4,961,694
	544,876	14,960,994	5,217,000
	8,234	1,905,313	637,625
	8,118,663	268,997,295	97,855,987

	Bank premises	Deposit for note circulation	Other assets	Total assets
	$	$	$	$
	292,308	1,127,784	1,806,312	894,889,962
	296,460	468,656	2,646,680	365,453,972
	628,666	219,616	.....	61,052,680
	977,635	149,637	142,061	670,607,116
	713,212	907,000	4,264,625	916,883,099
	769,000	1,380,000	5,982,566	148,600,144
	642,706	270,670	200,560	154,758,220
	581,723	262,006	288,642	174,910,280
	946,769	295,906	137,972	28,277,553
	440,000	18,756	.....	.....
	6,138,479	5,100,042	15,873,368	3,519,913,804

above return.—Footnote to Banque Canadienne Nationale return. Total assets include $55,814,382 letters of credit outstanding as shown in liabilities.

Mount Royal Hotel Affairs Given Airing

Committee Asks Support Owing to Serious Position

PROTECT EQUITY

From Our Own Correspondent

MONTREAL. — Preferred and common shareholders of the Mount Royal Hotel Co. are being solicited by a general protective committee in a move to protect their equity in the event of a possible foreclosure by the first mortgage bondholders and also to bring about a change in the management.

A. Stewart McNichols, of Montreal, is chairman of the committee. Other members include W. G. Hanson and Dr. W. G. Reilly, Montreal; Percy Hermant and Andrew Park, Toronto, and Isaac E. Pedlow, of Renfrew.

In the letter sent out by the committee it was stated that some arrangement be made, if possible, with the Metropolitan Life Insurance Co. to prevent loss of the property and to obtain some relief in respect to the company's obligations under the mortgage and that "the present policy maintaining close association with the competitors is not in the best interests of the company and therefore should be changed immediately."

Highlights of Letter

Highlights of the letter sent to the shareholders follow:

"As has already been disclosed by the annual financial reports and statements submitted to shareholders in the past few years, your company, after allowance is made for depreciation and mortgage interest, has suffered successive heavy operating losses and the working capital, which a few years ago was amply sufficient to carry on the company's operations, has been reduced to such an extent that, as at Dec. 31, 1938, as shown by the balance sheet submitted to shareholders, current assets amounted in effect only to $269,306 while current liabilities were $589,011.

Mortgage in Arrears

"Installments of principal on the first mortgage held by Metropolitan Life Insurance Company on your company's property are in arrears to an aggregate amount of $360,000, and that the prescribed half-yearly installment of interest on that mortgage amounting to $97,900, which was payable on June 1, 1939, has not been paid. There was also as at May 31, 1939, an accumulation of other unpaid interest, making the total interest due and unpaid as at June 1, 1939, $190,221.

"Municipal taxes due and payable on Oct. 1, 1938, amounting to $116,060, are unpaid and the current year's taxes amounting to $115,520 will fall due on Oct. 1, 1939."

Change in Board

As another result of its investigations, the committee has come to the conclusion that the present policy of maintaining close association with a competitor is not in the best interests of the company and, therefore, should be changed immediately.

"In view of the foregoing, the committee has also come to the conclusion that a change should be made in the present board of directors of the company.

"The committee has been given to understand that the Metropolitan Life Insurance Company is seriously considering action to protect its position and is taking legal advice. If it should decide to enforce its rights, the property of the company which is subject to the mortgage—that is to say, the land and building—would be brought to judicial sale. The committee considers that, in the circumstances, it is essential that some immediate arrangement be made, if possible, with Metropolitan Life Insurance Company to prevent the loss of the company's property and to obtain some relief for the future in respect of the company's obligations under the mortgage. The committee has had preliminary talks with officers of the Metropolitan Life Insurance Company and has reason to believe that some such arrangement is possible under certain conditions which would probably involve a change in the above-mentioned present policy with regard to a competitor and the raising of additional money by the company requiring a reorganization of the company's capital structure.

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Gaining as War Broke Building Likely Curbed

Activity in Canada in August Showed Upward Trend

Still struggling to regain normal levels after the stagnation of depression, construction activity in Canada seems destined to be markedly reduced during the present war.

In some quarters in the building industry, however, it is foreseen that wartime building activity may be less drastically curtailed than in the last war. Some shrinkage is regarded as inevitable by such analysts. But they believe that the subnormal volume of building for the past 10 years and the consequent backlog of potential need for all kinds of structures will keep building totals during the present war from falling to unduly low ebb.

It is expected that most contracts currently under way or recently awarded will be completed as quickly as possible in an effort to get work done in advance of probable increases in material costs. Some observers also suggest that with war activity increasing employment and tending to boost wage levels somewhat, that there will be demand for residential building. Considerable industrial building will be required, it is predicted, to enable Canadian factories to meet demands upon them for war materials production.

Record of 1914-18

In the war of 1914-18, however, building and extension of factories for wartime requirements failed to prevent building volume from falling to low ebb almost immediately after outbreak of war. For one thing, industrial building did not get under way for some time after war began, when the large extent of supplies expected from Canada was determined and industry settled down to meet this demand.

Residential construction fell to such low ebb in 1914-18 that an acute housing shortage was experienced in post-war years, and a building boom occurred. Erection of public buildings, schools, office and store buildings, and other units embraced by the classification of "business building," as well as road building and other phases classed under "engineering construction," were restricted to a minimum.

In contrast with the gain shown so far this year, construction in Canada entered the last war on a declining trend. Estimated total of contracts awarded had declined from $463 millions in 1912 to $384 millions in 1913, and declines in the monthly totals were recorded in every one of the first seven months of 1914. In the first month (August) after declaration of war, this decline was accelerated, and by October the monthly volume had dropped below $9 millions, compared with over $36 millions in the same month of 1913.

Below $100 Millions

For the remainder of the war monthly totals never rose above $12 millions, with the exception of June and August in 1918, when volume rose above $17 millions. While contract awards for all of 1914 totalled $242 millions, the annual total remained below $100 millions until 1919.

As computed by MacLean Building Reports from the known ratio of urban building permits to contracts awarded in all parts of Canada (urban and rural), building volume during the war years was as follows:

	(Millions of $)
1914	241.9
1915	83.9
1916	99.3
1917	84.8
1918	99.8
1919	190.0

Post-war Recovery

Though recovery did not gain much momentum until the summer of 1919, contract totals for the whole of that year showed substantial gains in all classes of construction except engineering, which failed to show any marked gain until 1920. Advance in the four main divisions of construction in 1919 is shown by the following comparison:

Construction Contracts Awarded in Canada (Estimated)

	1918	1919
	Millions of $	
Residential	14.7	47.0
Business	36.2	59.6
Industrial	38.9	57.1
Engineering	30.0	26.3
Total	99.8	190.0

By 1923, the contract total had risen to $331 millions. This reflects a far more rapid and substantial recovery than that shown in construction's attempt during the past few years to climb from depression depths to more normal levels. The upward trend since 1933 lifted the contract total from its depression low of $97 millions in 1933 to only $224 millions in 1937, and it fell back to $187 millions last year.

Despite the resumed upward trend of the past few months, experience of the past war and the weight of probability in the present outlook do not augur particularly well for construction work generally.

August Shows Gain

However it may be curtailed by the emergency conditions of war, activity appeared to be gathering upward headway as war broke.

Volume of new projects launched during August, the last month prior to advent of war, showed a gain of 16% over August last year. At the end of August, cumulative total of contracts awarded in the first eight months of the year was 6% ahead of 1938. At the end of July, the seven-month cumulative was only 3.6% above last year.

Total of $25.8 millions of contracts let last month, as compiled by MacLean Building Reports, reflected higher or maintained activity in all of the four main divisions of contract classifications. A drop in awards for business type projects was less than 1%, and was contributed chiefly by falling off in awards for public buildings, schools and warehouses.

More Industrial Building

Spectacular gains in industrial construction in recent months were extended in August with a further though more moderate gain of 10%, holding the cumulative for factory building about one third above 1938.

Greatest upsurge of new activity last month was in engineering construction, traceable mainly to increases in awards for wharf construction at Hamilton and Montreal; and for highway building in Quebec. Sub-total for engineering contracts, after lagging for months, showed a gain of 36% during August, and narrowed the lag in the cumulative from 32% at the end of July to 19% at the end of August.

Residential construction continued in August to bolster the grand total of construction activity, the increase again amounting to about one third over August last year. Bulk of the increase in residential building was in Ontario, Quebec and British Columbia.

Current Trends Of Construction

Trends of construction activity in Canada last month and so far this year, broken down according to the chief categories of projects, are shown in the following tabulation by The Financial Post:

CONSTRUCTION CONTRACTS AWARDED

First Eight Months:	1939	1938	—Change— 1939	
	—Millions of $—			%
Residential	46.1	36.7	+11.4	+31
Business	38.9	39.5	— 0.6	—1.5
Industrial	15.3	11.7	+ 3.6	+30
Engineering	29.8	35.6	— 6.8	—19
Total	131.4	123.9	+ 7.5	+ 6
August totals:				
Residential	7.1	5.3	+ 1.8	+34
Business	8.3	9.0	— 0.7	—8.6
Industrial	1.1	1.0	+ 0.1	+10
Engineering	9.3	6.8	+ 2.5	+36
Total	25.8	22.1	+ 3.7	+16

Detail of August Awards

	August 1939	1938
	$	$
Apartments	843,500	339,700
Residences	6,479,700	4,928,600
Total residential	7,123,200	5,268,300
Churches	807,800	406,300
Pub. garages	341,900	169,200
Hospitals	1,362,400	745,200
Hotels, clubs	274,900	138,300
Office bldgs.	289,900	503,300
Public bldgs.	2,317,600	2,082,500
Schools	1,125,600	2,000,000
Stores	638,100	619,100
Theatres	148,500	170,000
Warehouses	479,100	1,072,300
Total business	8,265,800	9,067,300
Total industrial	1,149,900	993,200
Bridges	671,500	527,100
Dams, wharves	1,375,000	616,500
Sewers, watermains	914,800	465,700
Roads, streets	6,007,100	3,440,400
Genl. engineering	119,900	1,797,900
Total engineering	9,288,300	6,847,600
GRAND TOTAL	25,827,200	22,113,400

Cumulative Totals—Eight Months

1939 ....$131,402,800 1937 ....$156,691,900
1938 .... 123,926,800 1936 111,113,100

Bank of Canada Weekly Statement

Gold holdings of the Bank of Canada are reported in the weekly statement as of Aug. 30 at $208.2 millions up $3.1 millions from the previous week. The increase was evidently in preparation for any need of strengthening the Canadian exchange position. Reserve of sterling and United States currency on the other hand was lower, probably due to sale of United States bills when the Canadian dollar declined during the week. Note circulation rose 5.2 millions to $179.3 millions, reflecting a heavier demand for cash.

Balance Sheet

	Aug. 30 1939	Aug. 23 1939
Liabilities	$	$
Capital paid-up	5,000,000	5,000,000
Notes in circ.	179,326,983	174,153,793
Rest fund	1,903,515	1,903,515
Depos.: Dominion	28,591,634	28,589,928
Banks	202,135,806	203,160,512
Other	10,566,268	8,566,740
Total deposits	241,293,708	240,617,181
All other liabs.	2,753,917	3,283,236
Total liabs.	430,278,103	434,957,724
Assets		
Reserve: Gold	206,335,895	205,191,063
Res. in sterling and U. S.	52,749,339	54,135,781
Other curr.	401	401
Total reserve	260,985,635	259,327,244
Subsidiary coin	395,390	410,068
Investments:		
Dom. govt. short	110,986,828	108,394,361
Other Dom. govt.	52,160,692	51,892,824
Total invest.	163,147,520	160,287,185
Premises	1,660,436	1,660,436
All other assets	4,069,121	3,302,771
	430,278,102	434,987,724
Reserve ratio	62.04%	62.32%

Monthly Bank Clearings

	August 1939	August 1938
	$	$
Halifax	10,124,455	10,779,598
Saint John	7,822,600	8,036,994
Moncton	3,090,870	3,120,998
Sherbrooke	3,175,167	2,916,421
Quebec	21,597,670	20,985,498
Montreal	455,013,256	440,975,530
Ottawa	71,137,930	76,478,858
Kingston	2,422,920	2,421,591
Peterborough	2,502,636	2,540,323
Toronto	435,582,607	455,774,768
Hamilton	20,354,411	20,480,989
Kitchener	4,176,565	4,313,112
Brantford	3,325,940	3,537,213
London	9,518,185	10,120,801
Windsor	10,779,234	9,701,607
Fort William	3,385,411	3,351,318
Winnipeg	189,479,217	123,004,918
Brandon	1,409,343	1,514,910
Regina	14,163,711	14,240,894
Moose Jaw	2,411,825	2,417,091
Saskatoon	1,041,642	1,141,370
Prince Albert	1,358,970	1,388,975
Edmonton	16,579,345	16,107,657
Calgary	19,256,467	16,897,864
Lethbridge	2,160,659	2,031,391
Medicine Hat	938,049	827,633
New Westminster	2,972,472	2,920,862
Vancouver	75,875,035	72,468,024
Victoria	7,496,316	7,367,129

Other People's Views . . .

Practical Training
Halifax Herald

Educationists everywhere are realizing that school programmes and curricula demand thoughtful revision to meet the new needs of this modern age. Youth today needs training in the problems of everyday life, personal and civic.

Courses, it is being rightly stressed, must be developed that reach boys and girls of secondary level—not bookish and theoretical but based on everyday experiences.

General science, personal and community health and sanitation, problems of local government, national problems, international relationships, home-making, personal finance, how to dress, development of individual personality, these are samples of this newer type of general education which would offer something of definite concrete value.

The right use of leisure time might also well become an important subject on the programme of the secondary school.

Solution for Surpluses
Regina Leader Post

Canada is not the only country in the world that has been having its problem of agricultural surpluses. Brazil, for instance, has destroyed $500,000 worth of coffee by burning it and has vast quantities more that may be destined for the same end.

Naturally when Herbert S. Polin of New York arrived in Rio de Janeiro recently with news that he has discovered a means of converting green coffee beans into a plastic material suited for floorings, walls, cups, plates and buttons, hopeful Brazilians greeted him with enthusiasm. For if a tangible use for this surplus coffee can be found, Brazil will be on the way toward solving one of its toughest economic problems.

The question may legitimately be asked: Why has not more progress been made in Canada toward developing other uses for our large grain surpluses, since we have not seemed able of recent years to get them into the hands of people who want to eat them? This is a Canadian problem, and one on which we have not seemed to make the progress we perhaps might.

Towns Have a Reputation
Bassano Recorder

Towns have a reputation, and are commonly known as live towns or dead towns. Two towns may have the same population and wealth, but one of them may have an element of live action in it which its rival lacks. What constitutes this life? It consists first in a willingness to work for the benefit of the community.

If the people of a town won't organize and carry on activities, they can be expected soon to fall behind. In a live town people are constantly looking out for chances to get new trade, obtain new industries, to encourage the industries they have to expand, and to maintain active organizations that provide home town benefits. Any town can become known as a live town if its people are active and energetic.

Food For Pessimists
Ottawa Journal

Forty years ago in this country we had one bicycle for every 80 people. Today we have one motor car for about every 10 people—and more bicycles.

Forty years ago we were without decent roads. As late as 1904 there were only 141 miles of paved road on the whole of the North American continent, less than a fifth of these in Canada. Today paved roads stretch all over the country, cement roads, trunk gravelled roads, dirt roads for farmers—tens of thousands of miles of them.

Take working conditions, and wages. In 1900 the average day laborer received between 35 and 40 cents an hour, worked a 60-hour week. Today the same laborer gets between 45 and 50 cents an hour, works a 48-hour week.

And not merely are working weeks shorter; working conditions are better. We have factory, shop and office-building laws; the building trades' protection act, fair wage acts. In addition, we have mothers' allowances, workmen's compensation laws, old age pensions. Under all of them are paid out millions every year.

Moreover, despite all the talk, we have more factories in this country today than ever before; more factories that employ more people and pay them better than before.

The End of an Exodus
Calgary Herald

It looks as though the emigration from the prairies may be over. Crops have come again; the livestock industry is in healthy condition; gardens are yielding heavily; grain companies are putting big staffs to work.

When disastrous drought followed on the heels of a world depression, the prairies became, for many people, a discouraging place. Some moved with money; many, without. Between 1931 and 1936, according to a Dominion Government estimate, nearly 100,000 people moved away from the plains. That was the bulk of the movement. Since then, it has been only a dribble. Now, perhaps, it has stopped.

British Columbia provincial authorities said last week that the last two years had seen a great diminution of prairie "immigration," and they were expecting very little this fall . . . just the normal influx which persisted even in the heyday of wheat prosperity.

About 60 per cent of the prairie emigrants went to British Columbia. Only a quarter of these were Albertans. The great majority were from Saskatchewan.

British Columbia authorities estimate that there are about 18,000 former Albertans living there, half of them drought-time migrants. The others are pensioners, businessmen who have moved their business, and so on.

It took courage for those 100,000 to leave the homes they had established on the prairie. It took even more to stay. It is the fervent wish of everyone in the West that the people who stayed in the dry areas, the people who had faith and hope enough to cling on, will reap their full reward. The evidence of the past year is that they will.

Succession Duties
Brantford Expositor

. . . Certainly, under present circumstances, no thinking person would accept the responsibility of being an executor for any Ontario estate. A basis of estimating the value of securities might be set by one Government, and an altogether different basis established by another. Are estates then to be reopened for this reason every time there is a change of Government? . . .

The courts, too, should not be closed to citizens who should have the privilege of defending themselves in this way. And the Government should abandon its inclination to nullify the decisions of the court by legislation. It is right that the Government should have authority to reopen estates where the reason for so doing is established, but this authority should not be abused.

New Books . . .

More Penguin Books

PENGUIN SPECIALS. By various authors. Published by Collins, Toronto. Price 20 cents each.

Recent "Penguin Specials" are rich in content, low in price. These little paper-covered volumes are written by outstanding scholars and journalists, and are as timely as a magazine article.

In the newest crop, just off the press, the emphasis is naturally on the European problem.

A Canadian Rhodes scholar is represented. W. J. Rose writes on "Poland." H- lived for many years in that country and now lectures in London. Polish history and Polish character are highlighted readably.

Elwyn Jones' "The Attack from Within" is a forthright study of how Nazi-Fascist propaganda and terrorism "bore from within" in the democracies.

Half a dozen British writers discuss "Germany, What Next?" from different angles,—the technique of totalitarian diplomacy, Germany's claims to colonies, the Axis in Africa, etc.

C. E. M. Joad stands further back from the current picture to write "WHY War?" and argues that war is not necessarily an inevitable part of life.

Dr. F. Borkeneau, writing about "The German Empire," sees no limits to German ambitions but sees also failure to achieve those ambitions and ultimate collapse for the Nazi regime.

"You and the Refugee" by Sir Norman Angell and Dorothy Francis Buxton, urges the democracies to meet their problem of a declining population and unemployment by a generous attitude toward refugee immigration.

Banking

Canadian Bank Deposits Abroad Show Reduction

Both Credit and Debit Balances Decline — Deposits of Foreign Currencies in Canada Lower for First Time Since October, 1938

Preparations for war appear to be reflected in a number of items in the latest return of the Canadian chartered banks to the Minister of Finance.

Deposits with branches of Canadian chartered banks outside Canada as at July 31 were reduced by $29 millions, though still $77 millions above last year. The change during the month is believed to be due partly to withdrawals by foreigners hoarding cash or transferring it to this side of the Atlantic. Expenditures for war supplies, it is believed, may also have been a factor.

The change was offset in part on the liability side by a decrease of $26.8 millions in deposits of the Canadian banks with banks in foreign countries. These also remained higher than a year ago by $93 millions.

Another interesting feature of the bank statement was the fact that deposits of money in Canada in currencies other than Canada were reduced by $11.6 millions from the previous month to $88.3 millions. This money, it is believed, has either been spent in this country on war supplies or been changed into Canadian funds. On the other hand there there was a slight increase in both call and current loans abroad.

Other changes have been more or less of a routine nature. Current loans were down $7.6 millions from the previous month, though still $27.5 millions above 1938. This reduction probably reflects further liquidation of grain loans. Call loans in Canada were down in both the monthly and yearly comparison.

On the other hand, total deposits in Canada were up both for the month and for the year. Savings deposits again went to a new high level at almost $1.7 billions. As deposits increased a little more in proportion than did loans, the result was a decline of 0.5% in The Financial Post Credit Index which is the ratio of current and call loans in Canada to total demand and savings deposits. The cash position of the banks was strengthened by $11.9 millions from the previous month and $26.1 millions from last year.

Use of Bank Credit in Canada
(In Millions of Dollars)

	July, 1939	June, 1939	Change	July, 1938	Change
	$	$	$	$	$
Loans	999.4	1,009.2	—10.5	990.9	+7.5
Investments	1,520.3	1,525.3	—5.0	1,436.4	+83.9
Total	2,518.7	2,534.5	—15.8	2,427.3	+91.4
Deposits	2,391.4	2,382.6	+8.8	2,293.7	+97.7
Credit index*	56.1	56.6	—0.5	57.3	—1.2

*Ratio of current and call loans in Canada to demand and savings deposits in Canada.

ASSETS

Immediately Available Liquid Assets

	July, 1939	June, 1939	Change	July, 1938	Change
	$	$	$	$	$
Canadian coin	5,678,665	5,311,687	+366,978	4,880,408	+798,257
Bk. of Can. notes	53,832,319	45,007,789	+8,734,529	47,909,240	+5,923,078
Bk. of Can. depos.	206,916,552	204,082,549	+2,834,003	187,533,785	+19,382,767
Bank's cash	266,435,535	254,402,025	+11,933,510	240,323,433	+26,102,102
Other bank notes	6,638,334	5,015,070	+1,623,264	5,705,862	+932,472
Gold & sub. coin abd.	5,578,973	5,793,697	—214,824	5,246,517	+332,356
Foreign banks	217,822,774	244,648,918	—26,826,144	124,660,294	+93,162,480
Foreign curr.	32,837,535	29,942,374	+2,915,161	26,234,608	+6,632,927
Gov. sec. short term	445,167,763	454,551,563	—8,383,801	421,545,378	+24,622,385
Do., long term	760,843,905	757,633,836	+3,210,069	717,142,471	+43,701,434
Call loans abroad	42,682,653	41,913,431	+769,421	53,630,213	—10,737,361
	1,779,017,570	1,793,990,914	—14,973,344	1,594,868,776	+184,148,794

Loans and Securities Other Than Those of Canadian Government

Municipal secs.	102,738,922	104,035,827	—1,297,205	106,648,635	—3,910,013
Public secs.	82,434,815	80,479,923	+1,954,892	61,378,192	+21,056,623
Other secs.	128,154,178	128,594,624	—440,446	120,787,251	+7,366,873
Can. call loans	51,239,956	52,454,170	—1,214,214	71,038,848	—19,798,892
Current loans	813,947,295	821,609,936	—7,662,641	786,366,739	+27,580,556
Loans abroad	144,928,018	144,038,405	+889,613	151,852,799	—6,924,781
Prov. loans	13,616,048	18,511,342	—4,895,294	17,030,643	—3,414,595
Mun. loans	119,358,195	116,712,778	+2,645,417	116,511,971	+2,846,224
	1,456,616,927	1,466,437,005	—9,820,078	1,440,593,079	+16,023,849

Other Assets

Non-curr. loans	8,995,950	8,979,027	+16,932	9,865,283	—869,324
Real estate	7,900,536	7,911,970	—11,434	8,336,305	—435,769
Mortgages	4,132,771	4,133,052	—281	4,408,314	—275,543
Premises	72,138,479	72,051,680	+86,799	73,556,282	—1,417,783
Letters of credit	55,814,232	53,421,218	+2,393,064	61,497,458	—5,683,176
Loans to comp.	11,432,861	11,507,495	—74,634	11,380,557	+52,304
Other assets	2,139,616	2,292,631	—153,015	2,146,211	—6,595
	163,554,504	160,297,073	+2,257,431	171,190,399	—8,635,895
Total	3,398,189,001	3,420,724,992	—22,535,991	3,206,652,244	+191,536,757
Note circ. dep.	5,100,042	5,618,983	—518,941	5,463,713	—362,713
Int. bank bal.	116,624,761	148,211,668	—31,586,907	110,282,256	+6,342,505
Gross	3,519,913,804	3,574,555,643	—54,641,839	3,322,397,355	+197,516,549

LIABILITIES

To the Public

Circulation	92,835,769	97,346,073	—4,510,304	100,841,202	—8,005,433
Dom. Govt.	64,928,562	94,739,294	—29,810,732	55,147,415	+9,781,147
Prov. Govt.	63,279,809	64,328,348	—1,048,539	45,506,250	+17,773,559

Deposits by Public

Demand dep.	694,168,484	702,232,175	—8,063,691	671,165,468	+23,004,016
Savings dep.	1,697,240,089	1,680,377,190	+16,862,899	1,622,606,061	+74,634,028
Total	2,391,409,573	2,382,609,365	+8,800,208	2,293,771,529	+97,638,044
Foreign dep.	474,232,824	503,737,167	—29,504,343	396,519,083	+77,713,741

Due to Banks Abroad, Etc.

United Kingdom	13,082,835	13,736,391	—653,556	11,026,305	+2,056,530
Foreign	45,351,573	46,586,574	—1,235,001	43,738,486	+1,616,107
Bills payable	300,977	207,962	+93,015	351,887	—50,910
Letters of credit	55,814,282	53,421,218	+2,393,064	61,497,458	—5,683,176
Other liabs.	3,528,861	3,441,826	+87,035	2,875,625	+653,236
Total public liabs.	3,304,765,063	3,260,352,218	—55,587,153	3,011,272,220	+193,492,843
Due bet. banks	19,861,066	20,027,440	—166,374	16,724,339	+3,136,727

Liability to Shareholders

Dividends	2,721,762	1,398,694	+1,323,068	2,552,021	+169,741
Reserve	133,750,000	133,750,000	.....	133,750,000	.....
Capital	145,500,000	145,500,000	.....	145,500,000	.....
Gross	3,506,597,893	3,561,038,352	—54,430,459	3,309,793,580	+196,799,313

*Other than Canadian.

Weekly Bank Clearings

	Aug. 31 1939	Change year ago	Aug. 24 1939
	$	%	$
Halifax	2,087,268	—9.6	2,163,767
Saint John	1,469,160	—11.8	1,790,327
Moncton	606,757	+3.1	737,316
Sherbrooke	636,950	+12.7	733,235
Quebec	4,125,757	—11.6	4,501,713
Montreal	108,939,316	+4.1	85,829,415
Ottawa	13,588,168	—0.9	12,955,525
Kingston	488,551	—0.4	605,357
Peterborough	471,280	—12.2	526,586
Toronto	104,885,589	+9.0	88,068,313
Hamilton	4,076,430	—6.2	4,957,673
Kitchener	818,286	—15.7	972,762
Brantford	694,152	+28.8	726,325
London	1,925,611	—6.8	2,058,302
Chatham	447,762	+30.9	436,103
Windsor	2,441,003	+5.8	2,345,070
Sarnia	388,895	—23.0	453,149
Sudbury	999,346	—9.1	1,000,511
Fort William	603,341	—12.7	788,472
Winnipeg	56,297,573	+47.1	48,174,130
Regina	4,080,893	+11.5	3,036,047
Moose Jaw	514,361	—8.8	528,427
Saskatoon	1,041,642	—8.7	1,077,488
Prince Albert	268,318	+0.6	292,813
Edmonton	3,443,518	—8.7	3,702,162
Calgary	4,055,405	—5.9	4,441,216
Lethbridge	466,726	—1.8	473,183
Medicine Hat	197,938	+27.7	229,921
N. W'minster	565,213	+4.2	617,987
Vancouver	15,826,729	+9.1	19,445,935
Victoria	1,438,691	—9.2	1,549,077

Foreign Exchange

AT TORONTO AND MONTREAL

	High	Low
U. S. Dollar		
Sept. 5	1.09	1.09
Sept. 4	—Holiday—	
Sept. 2	1.08	1.08
Sept. 1	1.08¼	1.08
Aug. 31	1.08⅜	1.08⅜
Aug. 30	1.08⅜	1.08⅜
Aug. 29	1.08⅜	1.08⅜
U. K. Pound	Closing	Last Year
Sept. 5	4.43	.....
Sept. 4	.....	4.85⅝
Sept. 2	4.44	4.86⅛
Sept. 1	4.44½	4.86⅛
Aug. 31	4.46¼	4.86⅝
Aug. 30	4.46½	4.86⅝
Aug. 29	4.87⅛	4.87⅛
Other Currencies. Sept. 2		
Australia	3.53½	Japan .... .2690
France	.0253	N. Zealand 3.51½
Greece	.0084	S. Africa . 4.43½
India	.3350	

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See Early Revision Certain Of U. S. Neutrality

Roosevelt Convinced Present Law Would Benefit Aggressors at Expense of Allies—American Credit and Supplies to Be Routed Through Canada, to Limit of Present Law's Elasticity

From Our Own Correspondent

WASHINGTON.—A special session of Congress to deal with revision of existing neutrality legislation is a practical certainty.

The present neutrality law prohibits sales of arms and munitions to any belligerent or the making of loans either to a state at war or to any of its citizens.

It puts no ban on the sale of raw materials, machinery, foodstuffs and/or any other articles not specified in the presidential proclamation.

Thus American sources of supply of everything except arms remain open to all the Allied countries. But the ban on arms sale is complete. It will extend to Canada, as soon as the President is forced to recognize that Canada is officially at war.

President Franklin D. Roosevelt and Secretary of State Cordell S. Hull have made up their minds that the present law is little more nor less than an added weapon in the hands of the international gangsterism that last week plunged Europe into an unnecessary war.

They have made up their minds that the situation is one that is incredibly immoral; that the United States must not continue to be the silent partner of the forces of aggression by refusing to the embattled defenders of democracy and freedom the right to draw upon the great resources and industrial capacity of the United States in their struggle.

That is what President Roosevelt referred to on Sunday night when he spoke of the need to achieve in the days to come "a true neutrality."

Care in Timing

President Roosevelt realizes that he must be very careful in timing both the special session of Congress and the introduction of revised neutrality legislation. It is less than three months since Congress, partially under the domination of isolationist sentiment, partially in a mood of pique at the New Deal, rejected a neutrality bill that would have put the Allied nations in a position to buy essential materials of war from the United States. The President cannot risk another defeat because it would be a defeat that might be final for the duration of the present war.

Mr. Roosevelt will seek to time his effort well. But with due allowance for the difficulties that stand in his way, it can be said with confidence that existing neutrality laws will be repealed or modified within a reasonably short period to permit the shipment of practically every type of arms, ammunition, aircraft and foodstuffs and other supplies to the Allied nations.

The legislation will, of course, not discriminate between warring nations. If Germany can "come and get it" Germany will be allowed to buy. But everyone in Washington knows that only the Allies have the cash to buy and the ships to carry goods in.

Market is Sure

The bullish upsurge on the New York stock market this week was a reflection of the conviction that the neutrality law will be amended despite the strength of pacifist sentiment and despite the need for handling the situation most delicately.

Let it be repeated that there is no question whatever of where the President stands in the matter. He and Mr. Hull are almost fanatical in their belief that Hitler and Hitlerism must be curbed and that the United States must help—even in the guise of neutrality—the Allied nations to do that essential job of curbing the international amoralists.

No definite decision has been reached as to the status of Canadian-American relations. A strict interpretation of the neutrality law would definitely include Canada among the belligerent nations and make Canada one of the states to which shipments of prohibited articles would have to be embargoed.

Will Work Through Canada

But again it is possible to speak with the utmost assurance to the wishes of the President. It is the desire of the President to show especial friendliness to Canada in every aspect of the relations between the two nations.

There is expected to be the very minimum of interference with the supply of machinery and raw materials for Canadian industry, and while new borrowings in the U. S. A. market will have to be prohibited the exemption of ordinary commercial transactions of a peacetime character can and will be stretched a long way. Nothing will be done that will impair the efficiency of Canadian industry if the President can have his way, and in this matter it is likely that he will have his way.

Allocate Industry

Already the special national committee on industrial mobilization, set up under the chairmanship of Edward R. Stettinius, chairman of United States Steel Corporation, has been discussing the question of the allocation of American industrial capacity between the tremendously accelerated rearmament programme of the United States and the needs of the Allied powers. A decision has been reached, according to external evidence, that the committee has decided to allocate a large proportion for the ultimate use of the Allied nations, and a proportion to home requirements.

Mr. Roosevelt's programme on the neutrality bill and his programme of mobilization practically on a war basis of the industrial machinery of the United States is receiving support from some of the major industrial elements in the country. A truce has already been declared in the war between the New Deal and industry.

Further Dollar Devaluation

A further devaluation of the dollar has already been discussed. The administration recognizes that this would be of great assistance to the Allied countries, which control such a large share of the world's gold production. The discussions are as yet premature. But if the war goes on for any length of time such further devaluation, with a write-up in the price of gold, is almost certain to come. This would aid in restoring parity between the American dollar and the currencies of Canada, Great Britain and other Empire countries.

Extraordinary precautions are being taken against industrial sabotage, as it is recognized that sooner or later American industry will be in the war and on the Allied side up to its neck whether the United States remains nominally neutral or not.

Isolationists Framed It

Existing United States neutrality legislation dates from May 1, 1937. It was the outcome of several years of efforts by isolationists in the United States to insulate this country against the flame of war in any part of the globe, to prevent that war spreading to the United States.

Back in August, 1935, Congress adopted a neutrality resolution. This provided for the imposition, when war broke out, of an embargo upon the shipment of all implements of war to belligerents, without regard to whether one of these belligerents had been an aggressor.

When this resolution came before him, President Roosevelt sought to reject it. He requested that he be given discretion to discriminate against an aggressor state. Congress refused to give him this discretion, taking the stand that to do so would put it within the power of the President to make what would virtually amount to an alliance between the United States and other states—such as Great Britain—and thus to embroil the United States in war without congressional consent.

Tested Against Italy

The neutrality resolution soon was tested when the League nations sought to impose an embargo on oil shipments to Italy at the time of its ruthless rape of Abyssinia. Secretary of State Hull went further than any of the League nations by declaring that the shipment to the belligerents of oil, copper, trucks, tractors, scrap iron and scrap steel was "directly contrary to the policy of this Government." Shipping lines were warned not to carry such articles to the warring nations (meaning Italy, as Ethiopia was in no position to buy very much anyway) and one oil tanker was actually prevented from sailing by the oblique procedure of threatening to foreclose a federal mortgage on the ship. But when Great Britain and France decided to ask the League of Nations to postpone action on the proposed oil embargo there was a reaction in the United States and all talk of enforcing this embargo was dropped.

In May, 1937, the isolationists achieved their aim of a comprehensive embargo and the act that they succeeded in putting on the statute books is there today. It was under this act that the President issued his proclamation this week.

Chief Provisions

The chief provisions of the neutrality legislation are these:

1. "Arms, ammunition and implements of war" must not be sold or exported to any belligerent nation.
2. This applies to civil wars as well as to wars between nations.
3. The President may enumerate the prohibited articles.
4. Other materials and articles may be sold on an unrestricted basis.
5. War materials for a belligerent must not be carried in American vessels.
6. No loans may be made to any belligerent. Ordinary commercial transactions of a peacetime nature are exempted. Existing loans may be refunded. The ban on loans applies to persons and companies. Relief funds are exempted where the President approves.
7. American republics engaged in war against a non-American state are exempted provided the American republic is not co-operating with a non-American state in the war.
8. Citizens of the United States are forbidden to travel on the vessels of warring states.

Benefits Aggressors

With the passage of that legislation the United States succumbed to the arguments of the isolationist school. It abandoned the traditional doctrine of the freedom of the seas.

It was always apparent to the friends of democracy that the legislation would, in the event of a European war, work to the benefit of Germany and Italy and against France and Britain. Germany, for instance, would have no cash with which to buy in the United States, France and Britain would. Germany would be blockaded. France and Britain would be able to control the seas.

The legislation made Germany's position no worse. It made the Allied position much worse.

Thus the neutrality act was a definite source of encouragement to the Fascist aggressors and a body blow to the cause of peace in Europe.

President Roosevelt recognized that. Secretary of State Hull recognized that. Most of the students of international affairs in the United States recognized that.

As a result an effort was made earlier this year to change the act and to replace it with legislation that would represent a "true and honest" neutrality rather than what the administration regarded as a sham neutrality.

Sought Revision

Various new bills were framed and introduced. The President brought all his strength to bear upon achieving the revision he desired. The legislation he sought would have repealed the arms embargo provision and provided for the following major objectives:

"To prohibit American ships, irrespective of what they may be carrying, from entering combat areas.

"To restrict travel by American citizens in combat areas.

"To provide that the export of goods destined for belligerents shall be preceded by transfer of title to the foreign purchaser.

"To continue the existing legislation respecting loans and credits to nations at war."

Urging passage of such legislation, Mr. Roosevelt said that what was needed was a neutrality act that would be a war preventive. (He was referring to the fact that the existing legislation was bound to encourage the aggressor nations of central Europe.) He went so far as to tell a press conference that an arms embargo would be a body blow to Great Britain and France if they came to grips with Germany and Italy. He had powerful support, notably from Senator Key Pittman, chairman of the Senate Foreign Relations Committee, who wanted the United States to sell arms to any combatant nation on a "cash and carry" basis—that is to say, to be paid for before leaving the country and not to be carried in American ships.

Action Deferred

But Senator Pittman's committee voted to defer action until the next session of Congress. In vain Mr. Roosevelt protested that "the failure by the Senate to take action now would weaken the leadership of the United States in exercising its potent influence in the cause of preserving the peace among the nations in the event of a new crisis in Europe between now and next January."

Congress adjourned with no further action taken. As a result, under existing laws, the Allied nations are forbidden to buy the necessities of war in the United States.

Southland Paper Mills Plant Work Progressing

From Our Own Correspondent

MONTREAL. — Southland Paper Mills Corp.'s new newsprint mill at Lufkin, Texas, is expected to be in operation about the beginning of December. Practically all of the plant is now under roof. The work of installing the water equipment is started and with the erection of the structure to house the grinding room, several units of this new mill will soon be ready for the installation of paper-making equipment.

U. S. Paperboard Output Above Last Year's Level

From Our Own Correspondent

MONTREAL. —Paperboard production in the United States during July amounted to 366,305 tons, or 63.9% of its capacity. This contrasts with 306,343 tons, or 59.7% of its capacity in July, 1938.

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Pulp and Paper Industry

Newsprint Demand Grows

Whole Outlook Changes Under War Conditions — Increased Demand and Recovery of Overseas Markets in Prospect

By JOHN LANGDON,
Eastern Editor, The Financial Post

MONTREAL — Newsprint bonds and stocks were bought heavily this week. They were bought for several reasons, namely—

that the Canadian Government would not restrict profits as might be the case with armament manufacturers;

that the European continental countries, especially Germany, would not be in a position to supply their overseas markets and that they would be pre-empted by Canada;

that the discount on the Canadian dollar ranging as high as 10% would mean an additional $5 a ton on deliveries of Canadian-made paper in the American market as the bulk of the contracts with U.S. publishers are on a New York pay basis;

that the demand for newsprint, not only because of the inability or difficulty of European countries to supply regular customers, but also because of increased reader interest, would rise; and

that prices of newsprint paper would advance, meaning larger earnings and in turn larger profits for the Canadian operators.

All these appear to be sound reasons for the marked strength in newsprint bonds and stocks this week.

Industry Outlines Position

Before analyzing the position of the industry and the operators, it is well to draw attention to the statement issued by the Newsprint Association of Canada and appearing in full elsewhere in this issue.

The Association says that the manufacturers met and agreed in view of the seriousness of the situation that they would not make any attempt to profiteer. Further they intended to make every effort to maintain a continuous supply and to discourage methods of buying and selling which might cause a disorderly market.

Looking to Future

This is an important statement. It is extremely important for many reasons as holders of newsprint securities will realize upon closer consideration.

The Canadian newsprint industry has been losing its position in the United States and world markets. The change has been of minor proportions to date, but sufficient to indicate a trend.

The war situation creates an opportunity for Canadian industry to re-establish itself on a tremendously strong and lasting basis. It is too good an opportunity to miss. That is how the manufacturers see it and they are setting their policy accordingly. They are not attempting to capitalize on a war situation and what may be a temporarily abnormal demand for newsprint paper. They are building for the future.

During the first year of the last war there was no runaway market for newsprint. In 1916 there was a sharp jump in the price of newsprint, but in 1917 and 1918 the price remained fairly constant. It was not until 1920 and 1921 that the newsprint market "went off the rails" and contract newsprint sold at well over $100 a ton.

Regulate Their Affairs

Canadian manufacturers have the precedent of the last war to go on. This time they are going to attempt to regulate their affairs in such a way as to protect the publisher, particularly the American publisher, in seeing that supplies are maintained on a regular basis and that the price of paper is adjusted on a basis consistent with costs and conditions under which the publisher must function in wartime. That is indicated by the operators manifesto.

Such a policy is undoubtedly in the best interests of the industry. It may restrict earnings below what some investors and speculators anticipate. On the other hand it will consolidate the position of the Canadian manufacturer in the American and other markets.

War Helps Industry

So much for the announced policy of the industry. Unquestionably wartime conditions will have a beneficial effect on the industry, The Financial Post is informed. There will be more paper used; there will be more markets to supply; and even under the strictest control the price of newsprint should tend to rise under the abnormal operating conditions which face the industry.

At this time it is almost a certainty that the demand for newsprint will increase, especially for the paper made in Canadian mills.

The demand of the public for war news has already created a much wider reader interest. This has made itself very evident in the sale of newspapers in Canada and the United States. The metropolitan papers of New York report a sharp increase in sales, resulting in a much greater use of newsprint.

The same condition applies in the Canadian market on a smaller scale. The aggregate effect is a marked increase in the demand for paper and lightening of stocks on hand.

The increase in demand from Canadian and American publishers has already made itself felt and very shortly will be reflected in the operating ratios of the Canadian mills.

Regain Overseas Markets

But the great change, and where many investors expected the industry to benefit very materially, will come from the re-establishment of overseas markets which have been lost to European producers for one reason and another.

In the first place the German newsprint export trade is lost; at least overseas shipments which account for the larger share of this business. The Finnish, Norwegian and Swedish manufacturers will have to accept the fact that a good deal of their overseas markets are gone. The dangers to shipping, high insurance costs, irregularity of shipments will, in very quick time, mean the switching of business to other countries where there is more assurance of regular supplies.

That is where Canada expects to gain very materially from the present situation. It is not suggested that the Scandinavian countries will lose all of their newsprint export trade, but it is difficult to see how they can expect to hold it.

Europe and States

Last year the United States users imported from the four European countries 236,000 tons of newsprint. They have been buying more this year. Finland was the principal supplier, with Sweden in second place. Between them they accounted for over 90% of the European paper shipped to the American market.

Look to Canada

It is too early to make any definite statement as to the possibility of these two countries maintaining regular supplies for the American market. They must continue regular supplies if the market is to be held. The prospects are against such maintenance, as shipping must pass through the blockade areas, etc. Some newsprint will come through, but the longer the conflict lasts the more the United States will have to depend upon Canada for her supplies.

How much of this tonnage will accrue to the Canadian manufacturers is anyone's guess at this juncture. Further it should not be forgotten that in the event of a runaway market, many mills in the United States might find it profitable to switch over to the manufacture of newsprint paper. But in any event, and especially if Canadian operators are able to maintain their announced policy, it is only reasonable to expect that a large proportion of the nearly 250,000 tons of paper bought in Europe by the American publishers will be diverted to Canadian and Newfoundland mills.

Newsprint Price 1912-1921

What of the price of newsprint? The yearly average price of newsprint delivered in New York before, during and immediately after the war, is set out in the following table:

Delivered at New York (Yearly Average)

1912	$42.40*	1917	$83.78
1913	40.00*	1918	64.90
1914	39.80*	1919	80.15
1915	42.00	1920	112.60
1916	51.70	1921	111.45

Current price—$50.00

* F.o.b. mill.

It will be noted that between 1914 and 1918 the price of newsprint advanced from approximately $40 to $65 a ton, a gain of 62.5%. The big increase, it should be emphasized, did not come until after the war.

A runaway market might inspire the establishment of other mills in the Southern States, but in view of the time involved in bringing a plant into production, this is not a serious consideration at the moment. However, the Southland Paper Mills new unit at Lufkin will probably come into production by the year end, making available a fair quantity of medium grade paper.

Question of Costs

The possible price trend is hard to evaluate for even the industry is not in a position to say what will be its price schedule next year. The price level will be influenced by many factors; labor costs; transportation costs; advance in the price of materials; and last, but not least, the extent of the anticipated increase in demand.

But taking the industry's announcement at face value, it is certain that the manufacturers are not going to take advantage of a wartime condition to gouge the American and other publishers who are largely dependent upon outside sources to meet their full requirements.

Price Changes Moderate

It is not expected that there will be any immediate sharp advance in costs. For example, not until 1916 did the price of pulpwood show any material change and then the advance was moderate. There was a fairly stiff advance in 1917 and again in 1919, as is shown in the tabulation below:

Average Value of Pulpwood

1912	$ 6.46
1913	6.67
1914	6.72
1915	6.61
1916	7.09
1917	8.56
1918	10.64
1919	11.99

Power Costs Constant

Power costs are not expected to advance. The mills operate under long term contracts and have a fixed price for their primary power and, in many cases, for steam power.

Pulpwood and power are two important items in the costs of the newsprint manufacturers and for the time being should not, in the aggregate, show any marked change from present levels. Other costs will rise with the length of the war.

No Restrictions in Sight

There does not appear to be any likelihood at this time of the Canadian Government attempting to place any restrictions on the selling price of newsprint. Such a condition would not be unexpected for other industries which are more closely associated with armaments or the production of supplies considered essential for the conduct of the war.

The newsprint industry, in that respect, is not a "war baby"; a fact which has influenced a considerable volume of buying of the bonds and stocks of the different companies during the past week.

Bonds Are Best Bet

By far the soundest investment just now is in the bonds of the newsprint companies. Practically all of them are selling at a discount, some at a very heavy discount. The prospects clearly indicate that unless war comes to an end very shortly, all the companies will be able to show earnings well in excess of their interest requirements.

A number of the junior securities, preferred and common stocks, are certainly not without attraction but it appears that until the situation straightens out or settles down, the values will be predicated on hope rather than on any tangible values.

Rolland Paper Mills Doing Work on Plants

From Our Own Correspondent

MONTREAL.—Rolland Paper Co. has undertaken further improvements to its filter plant at the Mount Rolland mill. The work includes a new settling basin, filtration equipment and accessories.

The company is also making improvements to its power plant at the St. Jerome mill, bringing about increased capacity through installation of a new turbine unit and auxiliary equipment.

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As a subscriber to The Fin cial Post I would like to rece your comment on the stock Fanny Farmer Candy Shops.
In a letter accompanying a d dend cheque to shareholder July, John D. Hayes, presiden Fanny Farmer Candy Shops stated that business to that date improved over the same perio 1938, and that all signs pointed continued increase for the bal of the year. Increase in sales of company has been the general over many years, and in 1938 total reached a record high, amo ing to more than $6.8 million.
During that year, 18 additi stores were added to the organ tion, bringing the total at the of the year up to 238, and an a
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Fanny Farmer

As a subscriber to The Financial Post I would like to receive your comment on the stock of Fanny Farmer Candy Shops.

In a letter accompanying a dividend cheque to shareholders in July, John D. Hayes, president of Fanny Farmer Candy Shops Inc., stated that business to that date had improved over the same period in 1938, and that all signs pointed to a continued increase for the balance of the year. Increase in sales of this company has been the general rule over many years, and in 1938 the total reached a record high, amounting to more than $6.8 millions.

During that year, 18 additional stores were added to the organization, bringing the total at the end of the year up to 238, and an addition was made to the company's Rochester studio. There are now in operation six manufacturing studios distributing candy over substantially all of the U.S.

Of the same origin as Laura Secord Candy Shops, the organization has been quite as successful in its operations in the U.S. as has Laura Secord in Canada. In 1937, Senator Frank O'Connor, founder of the company, disposed of his interest to a Toronto financial group, but management, personnel and policies of the company have remained much the same as in Senator O'Connor's regime.

In 1938, earnings were equivalent to $2.35, $2.06 in 1937 and $1.50 in 1936. In 1938 and 1937, the company paid $1.75 in dividends. This amount was composed of four regular quarterly dividends of 25 cents and extras of 75 cents. On March 1, 1939, the stock was put on a regular quarterly dividend rate of 37½ cents a share.

Provincial Paper

I am thinking of buying the preferred stock of Provincial Paper Ltd. and would like your comment on such a move.

Provincial Paper Ltd., makers of fine papers, recently reported that tonnage sales and earnings were up moderately over the same period in 1938. At the same time, it was pointed out that in 1938 sales in the first part of the year were down substantially and showed much improvement in the latter part of the year. It is to be expected, therefore, that the showing in the first half of 1939 would be substantially better than in the same period of the preceding year. As the year progresses, there will be a tendency for earnings to level off.

Outlook for the rest of the year is fairly encouraging, and it is likely that results for the full year will be as good if not a little better than those of 1938.

In the latter year, net profit was equivalent to $6.92 on the 7% preferred stock, fractionally short of the $7 dividend requirements. In 1937 the preferred stock earned $9.74 and $11.38 in 1936. Over a period of years, the company's earnings record has been quite satisfactory, and 1938 marked the lowest net profit the company has experienced since 1927. The smaller net profit in 1937 and 1938 has been ascribed to larger appropriations for depreciation, and with smaller deductions for this purpose in the current year there might be a substantial increase in profits.

Preferred dividends have been paid regularly on the preferred stock since it was issued in 1927. The common stock of the company is held entirely by Abitibi Power & Paper Co.

International Nickel

In view of the lower earnings shown by International Nickel last quarter I have been considering the advisability of selling my shares. What do you think of the present situation?

While earnings of International Nickel showed a decline at 53 cents a share for the three months ended June 30, 1939, compared with 62 cents a share in the immediately preceding three months, it seems hardly proper to judge any company's merits by results of three months operations alone. Earnings of International Nickel started recovering from the business recession rather sooner than for the majority of companies and it is therefore not so surprising if earnings have reached a temporary peak sooner than for other companies.

The basic factors in the International Nickel situation still seem sound. Nickel continues to find new uses, expanding the number of industrial outlets. In the present war, peace-time industrial uses will likely suffer but war demand should be on a much higher scale than in the last war now there is a greater emphasis on mechanized warfare. Few, if any, mining companies in the world are better off than International Nickel as regards ore reserves. Operations are on a particularly flexible basis since ore can be drawn from several mines simultaneously and the metal content varied at will to give high or low productions of nickel and copper, the two chief metals produced.

Toronto Elevators

In view of the larger grain crops in the Canadian West this year, what are the prospects for Toronto Elevators?

Financial statement of Toronto Elevators, Ltd., for the year ended July 31, will show net profits equivalent to more than $1 a share on the common stock, it is reported. In 1938, the company showed a deficit equivalent to $6.39 a share on this class of stock.

In the 1938 year this organization showed a loss for the first time in its history. An operating loss of $228,570 was shown in that year compared with a profit of $392,280 in the year ended July 31, 1937. Conditions have improved much in the past year. During that time, storage facilities in eastern Canada were utilized to a much greater degree than in the previous year. There has been a large carryover of wheat into the current year, and from present indications there will be another one in the coming year. This would indicate that eastern elevators will be well filled and consequently earnings are likely to be more satisfactory.

The company has paid its preferred dividends regularly since initial payment on June 7, 1937. Common dividends were last paid on Oct. 30, 1937, when $1 disbursement was made.

Another consideration that should be weighed when regarding this company's prospects is the effect of the recent trade agreement on grain elevators. Because Canada has lost its preference of wheat the advantage in shipping grain from Canadian ports to the U.K. has also been lost. It is possible that in the winter months particularly much of Canadian grain will be shipped via U.S. ports. The grain trade is one that may be greatly affected by the outbreak of war which will likely increase the demand for Canadian wheat.

Imperial Oil

Would you please send me a brief summary of the position of Imperial Oil Ltd.

Imperial Oil Ltd. is the leading unit in the refining and distributing of petroleum products in Canada. This business, however, has not been as profitable as in former years in spite of record volume of sales, chiefly because of unsatisfactory price relationships. Imperial Oil obtains about 87% of its income from dividends and interest received from subsidiaries and its general investments. The major subsidiaries are International Petroleum and Royalite Oil. Both of these are important producers of crude oil, the former in South American countries and the latter in Alberta. Imperial Oil has a strong financial position and ample resources. For the past several years it has followed a policy of paying out dividends of $1.25 a share although reporting in annual net profits only around 95 cents a share.

With its control of large crude oil resources, Imperial could provide a partial hedge against wartime inflationary effects.

Union Gas

Would you please outline operations and earnings position of Union Gas Co.?

Union Gas Co. of Canada is largely dependent on weather conditions for the measure of its prosperity. Normally 50% of revenue from gas sales is derived in the four winter months of December, January, February and March.

It is both a holding and operating company. The company and its subsidiaries supply natural gas to a steadily growing number of customers throughout the greater part of southwestern Ontario, including London, Windsor, Sarnia and Chatham. It also controls the sale of natural gas and artificial gas in the Hamilton area, jointly with Dominion Natural Gas Co.

In the year ended March 31, 1938, Union Gas earned $1.29 on its common shares, compared with $1.31 a share in the preceding year. A dividend of 80 cents was paid during the year, compared with a payment of 70 cents in 1938. Earnings of the company in the three months ended June 30, after all charges except income tax, were $278,321, compared with $180,047 in the corresponding period of the previous year. Improvement was due chiefly to colder weather in April and May.

The company has demonstrated relative stability of earnings, but weather conditions cause rather wide fluctuations in results from year to year. The territory in which the company operates is one of the best populated and profitable for utility operations in Canada. One may reasonably expect continuation of past satisfactory results.

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Profit Shown in Past Three Months — Interest Covered

From Our Own Correspondent

MONTREAL.—Operations of International Hydro-Electric System and subsidiary companies on a consolidated basis resulted in a net profit of $296,750 for the second quarter of 1939. This compares with a loss of $241,554 for the same period of 1938.

These figures are for the system and its subsidiaries on a consolidated basis. As a separate entity, the system is now receiving interest in dividends from its subsidiaries in amounts sufficient to cover, by a small margin, its outgo for current expenses and interest.

Comparative statement of consolidated profit and loss follow:

Quarter Ended June 30	1939	1938
	$	$
Operating revenue	15,741,679	14,632,723
Other income—net	773,088	726,701
Total revenue	16,514,767	15,359,424
Expenses:		
Oper. expenses	5,024,218	4,866,980
Maintenance	945,026	889,361
Taxes	2,177,691	2,025,977
Net revenue	8,367,830	7,577,126
Deductions:		
Int. on debt of subs.	2,625,782	2,881,501
Int. on debent.	396,520	366,520
Amort. of debt disc.	209,028	237,753
Depreciation	1,626,977	1,308,079
Income taxes	695,001	664,424
Divid. on stocks of subs.	2,065,356	1,705,724
Divid. not paid on stocks of subs.	72,152	403,596
Minority interest	327,810	213,320
Other charges	30,564	5,704
Net profit	296,750	*241,554

*Loss.

Dosco's Position in War Likely to be Important

Rebuilding Programme Since 1930 Adds Greatly to Strength of Big Steel and Coal Company — In Key Position

From Our Own Correspondent

MONTREAL.—Dominion Steel and Coal Corp.'s productive facilities will be pushed to the limit to meet any calls to meet Great Britain's war requirements.

During the last war the units that now go to make up Dosco were operated independently. They played an important part in Canada's wartime efforts. The merger did not come until after the war. It was not a success for a number of reasons, principally overcapitalization. The present enterprise is of a different calibre.

Since the reorganization a few years back, the management of Dosco has been working steadily to improve productive capacity, lower costs and generally to integrate the various units going to make up the largest iron and steel enterprise in the Dominion.

This job cannot be said to be completed. But it is so far advanced that within the next few months the company will have finished its major capital expenditures. Dosco will then be able to show what it can do.

In Key Position

'Dosco is an important link in any programme that Canada may lay down in supplying war materials to England. The company has its own supply of all the materials required for a major iron and steel industry. It has iron ore, coal, limestone, lumber, etc.

The plants operated by the company stretch from the Border Cities on the west to Sydney and Halifax on the east. They are all capable of producing armaments.

Room For Expansion

At present Dosco is working close to its effective capacity, but under wartime conditions output could no doubt be greatly increased.

Last year the iron and steel mill at Sydney operated at 82% of capacity. The other units, engaged in various activities and the processing of iron and steel, did not do as well. While there was a slackening off in the early months of this year Dosco's operations at Sydney are again on a capacity basis. This condition will undoubtedly continue throughout the balance of the year, with a large proportion of the output going to England. Only a small percentage of the iron and steel output is being directed to the domestic market.

During July the Sydney mills turned out 23,000 tons of pig iron. This was practically the same as in the previous month and compares with 13,000 tons in July last year. In the last three months output has been about 75% greater than in the like period of 1938.

Supply Essential Needs

A brief review of the different properties belonging to Dosco and what they might be expected to do in wartime reflects great potentialities.

Unquestionably the iron and steel mills at Sydney would be worked to capacity.

The iron ore mines at Bell Island would be able to supply large quantities of ore to British steel mills. At the same time the company would lose the contract with the German mills which take 700,000 tons annually.

The Halifax Shipyards, a subsidiary, would find a much greater demand for its services.

Properties at the Border Cities, Peck Rilling Mills at Montreal, the various wire and fence mills, etc., could be readily converted or turned over to the manufacture of war supplies.

The productive facilities of Dosco will undoubtedly be called into full play as the need arises. This does not necessarily mean the prospect of inflated profits such as occurred during the last war. A repetition of this is hardly conceivable under present conditions. However, even allowing for a normal return on capital, it is possible for Dosco to show better earnings and more in line with the capital invested in plant, equipment, etc.

Plants Now in Shape

It can be said at this time that further major capital expenditures are possible but not altogether likely as far as the Maritimes are concerned. The company is now spending $1.5 million on the installation of two open hearth furnaces which will add nearly 50% to the capacity. This will make a total outlay on plant since 1930 of close to $8 millions, exclusive of the amounts spent on replacements, repairs, etc., and which are charged directly against operations.

With its plant in much better shape now than it has been in many years, production stepped up and costs lowered, the company is in a position to handle a greatly increased volume of business on favorable terms.

Trend of Earnings

As a matter of interest it is worth while noting what the company has been able to do since the depression set in and during a time which did not make for particularly profitable operations:

	Gross Income	Earned per Share on "B" Stock
1932	$ 112,987	$1.38d
1933	468,045	0.49d
1934	1,008,178	0.91d
1935	1,395,633	0.15d
1936	1,460,026	0.02d
1937	2,976,696	1.56†
1938	3,009,312	1.19‡

d—Deficit. †On $21,044,000 of stock. ‡On $25,977,075 of stock.

Earnings for the current year may not be as large per share as in 1938 unless there is a marked change in the selling price of iron and steel products between now and the end of the year. It is possible, but prospects are that the change will not be timely enough or sufficiently large to offset the decline experienced earlier in the year.

Since its organization in 1930 the Dosco management has been able to effect a number of very important changes in the company's position. The capitalization, of course, has been put on a much sounder basis, with fixed charges reduced very substantially.

The work done in the past nine years has put Dosco in a much stronger position.

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Company Reports

North American Elevators

North American Elevators Ltd., operating a terminal grain elevator at Sorel, Que., reports net profits equivalent to $3.15 a share on the 3,157 shares of 7% first preference shares. This compares with a net loss equivalent to $8.32 a share on the same stock in the year ended April 30, 1938. Arrears of dividends on the first preference amounted to $40.25 a share as at April 30 and on the second preference, on which no payments have ever been made, to $67.25 a share.

Bank loan was reduced by $70,000 to $160,000 during the year. First mortgage bonds outstanding have been increased to $430,300 from $410,300 a year earlier. The issued amount of bonds is up $41,000 but the amount delivered to the trustee for sinking fund is also up $21,000, leaving a net increase in amount outstanding of $20,000.

Income and Surplus Account
Years Ended April 30

	1939	1938
	$	$
Gross earnings	340,188	146,134
Less: Sorel elev. oper.	200,457	81,134
Gen. & admin. exp.	16,316	10,595
Executive salaries	8,000	6,306
Legal expenses	785	319
Directors' fees & expe.	355	255
Operating profit	114,075	45,426
Less: Depreciation	64,478	32,316
Bond interest	37,239	26,886
Bank interest		12,498
Income taxes	2,300	
Net profit	10,058	*26,275
Less: Previous deficit	31,736	5,461
Deficit forward	21,678	31,736

*Loss.

Working Capital

	$	$
Current assets	37,440	29,779
Current liabilities	36,360	53,284
Working capital	1,080	*23,505

*Excess current liabilities over current assets.

Ont. Steel Products

Net profits of Ontario Steel Products Co. for the year ended June 30, 1939, were equivalent to 76 cents a share on the common against $1.37 a share for the preceding year. An interim dividend of 50 cents a share was paid on the common in August, 1938, following payment of remaining arrears on the preferred. Another common dividend of 60 cents was paid Aug. 15, 1939.

The company's assets were appraised by Canadian Appraisal Co. last year. A capital surplus of $409,019 resulted. Of this $70,536 has been used to write down water power rights and $273,930 to write-down investments in shares of other companies. As a result fixed assets are now shown at $1.1 million compared with $663,120, after depreciation of $820,537, at June 30, 1938. Water powers are shown at $25,000 compared with $95,536.

Mortgage payable has been reduced from $105,000 to $95,000. Book value of investments in bonds and shares of other companies is shown at $112,790 and market value is $127,670. This item is not included in current assets.

Income and Surplus Account
Years Ended June 30

	1939	1938
	$	$
Net oper. profit	122,807	151,847
Add: Net invest. rev.	9,119	11,162
Net earnings	131,926	163,009
Less: Depreciation	25,000	25,000
Exec. salaries	25,340	19,645
Directors' fees	1,577	2,295
Legal fees	120	143
Mortgage interest	5,381	5,906
Income tax	12,500	18,500
Net profit	62,007	91,520
Less: Pref. divds.	25,221	89,174
Com. divds.	24,220	.....
Surplus for year	12,546	2,346
Add: Prev. surplus	252,661	230,317
Subsc. shs. forfeited	.....	19,998
Less: Inc. tax adjust.	1,065	.....
Earned surplus fwd.	264,162	252,661
Earned per Share:		
Preferred: Earned	$17.21	$25.40
Paid	7.00	24.75
Common: Earned	$0.76	$1.37
Paid	0.50	nil
Shares Outstanding:		
Pref. 7%, $100 par	3,603	3,603
Common, n.p.v.	48,440	48,440

Working Capital

	1939	1938
	$	$
Current assets	372,165	472,011
Current liabilities	38,006	68,325
Working capital	334,159	403,686

Power Corp.

Power Corp. of Canada financial statement for the year ended June 30, 1939, shows earnings holding at the same level as the year before. The market value of the investment portfolio was off about $2.5 millions to less than $23.4 millions.

Gross income last year was $1,707,028, or only $20,000 less than the year before. After all dividends, there was a surplus of $60,278, as against $128,000 in the 1938 fiscal year.

A number of changes are noted in the balance sheet. For the first time in several years the company reports a secured bank loan of $650,000. No details are given in the report as to the reason for this loan. The outstanding 5% debentures were reduced from $1,326,700 to $1,276,200.

Among assets cash on hand shows a decline from $387,809 to $171,362. Investment in subsidiary companies remains practically unchanged, while holdings in affiliated companies declined during the year from $10.4 millions to $10.2 millions. Other investments increased from $7,774,208 to $8,913,252.

Comparative figures on the income and surplus account for the past few years follow:—

Income and Surplus Account
Years Ended June 30

	1939	1938
	$	$
Gross income	1,707,028	1,747,333
Less: Expenses	250,778	245,230
Taxes	37,643	27,926
Interest	470,527	458,289
Net revenue	928,080	1,015,888
Less: Pfd. divds.	600,000	600,000
Common divds.	267,802	267,792
Surplus	60,278	148,096
Previous surplus	*1,776,666	1,643,570
Surplus forward	1,836,944	1,791,666

*Adjusted.

St. Lawrence Flour Mills To Pay Bonus on Common

From Our Own Correspondent

MONTREAL.—St. Lawrence Flour Mills Co. has declared a special bonus of 50 cents a share on the common stock, payable October 2 to shareholders of record Sept. 20. The company has been paying a regular quarterly dividend of 25 cents a share beginning from August, 1937. The last dividend preceding the present bonus was a payment of 25 cents a share on August 1, 1939.

Declaration of the bonus would indicate a sharp pick-up in earnings. For the year ended August 31, 1938, there was a net loss of $17,972 before preferred dividends of $40,250. This contrasts with a profit of $112,301 in the previous year.

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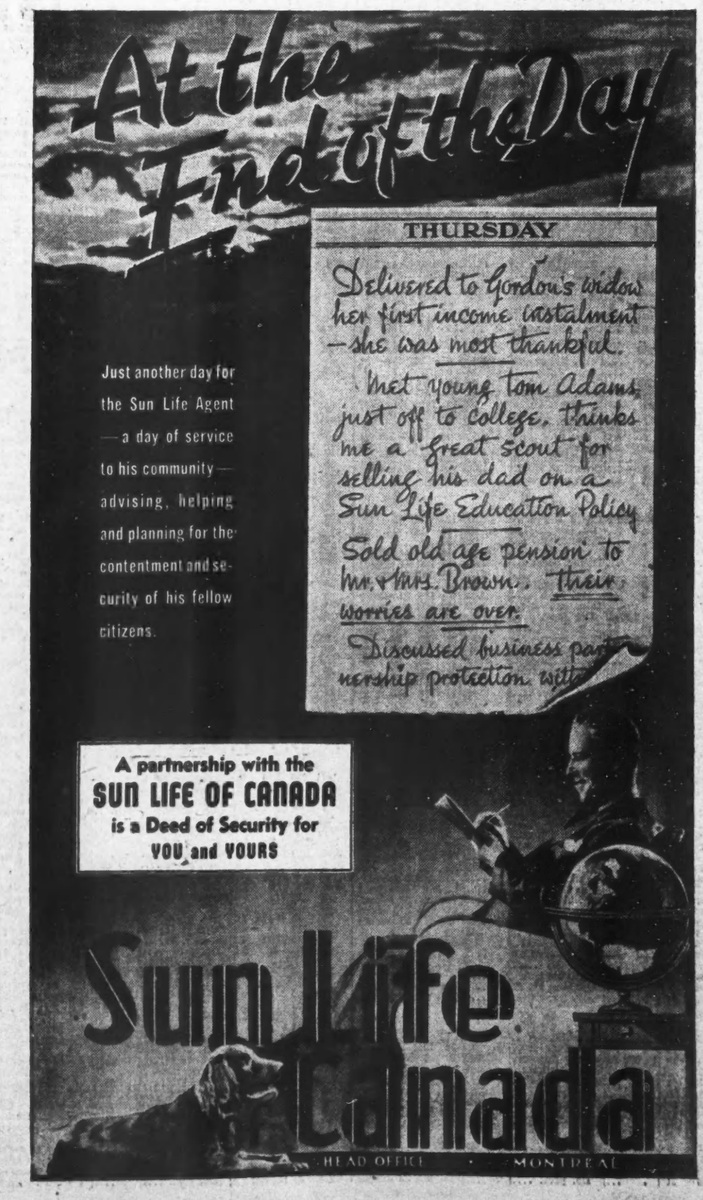
At the End of the Day
THURSDAY
Delivered to Gordon's widow her first income instalment—she was most thankful.
Met young Tom Adams just off to college, thinks me a great scout for selling his dad on a Sun Life Education Policy.
Sold old age pension to Mr. & Mrs. Brown. Their worries are over.
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Toronto and Montreal Exchange

The Week's Quotations

The following table is confined to official prices for listed stocks, including curb market quotations. Where no transaction is recorded, bid and asked prices are given. For unlisted stocks, quotations by unlisted dealers are published. The Financial Post cannot accept any responsibility for such quotations.

WEEK ENDING SEPTEMBER 4

Range 1939 High	Low	DivSep. 2 R'te	Y'ld	Sales	Last Aug. 28	Week end. Sept. 4 H	L	Cl'se

A

2.87	.50			Abitibi	5105	.80	1.00	.65	1.00
.21¼	.07			Do. pref. 6%	2890	.41	.51	.41	.51
.21	.04			Do. pref. 7%	....	(4 bid — asked)			
4½	.32	30c	7.5	Acadia Sugar	15	4½	4	4	4
.81	.51	30c	5.2	Do. pref.	....	(41 bid 5 asked)			
1.50	.50			Acme Glove	....	(2½ bid — asked)			
*83	.60			Do. pref.	....	(— bid — asked)			
111	.91	60+20c	8	Agnew Surp.	....	(81 bid 9 asked)			
111	106	7	6.7	Do. pref.	....	(104 bid — asked)			
3¼	1			Alta. Pac. Gr.	4	2½	1	1	1
24	13			Do. pref.	30	20	14	14	14
144	64			Algoma Steel	75	9	8¼	8¼	8½
7	3			Do. pref.	....	(— bid — asked)			
140	119	25c+10%		Aluminum	71	115	121	115	120
113¼	111½	6	5.4	Do. pref.	....	(— bid 74 asked)			
3½	2½	60c	2.7	Amer. Cyn. B.	....	(— bid — asked)			
3.70	2.75		5.7	Ang. Can. Tel. p	10	48	48	48	48
28¾	17½	60+30c	4.4	Asbestos	4401	20	21	17½	21
17	14½	60+45c	7.8	Assoc. Brew.	650	151	16	14½	15
115	106½	7	6.2	Do. pref.	....	111½	bid 115	asked	
*61	....			Assoc. T. & T.A.	....	(— bid — asked)			
31	29	1.36		Do. pref.	....	(— bid 30 asked)			
103	100½	5.50	5.5	Ault & Wiborg	....	(— bid — asked)			

B

168	162	8	4.9	Bk. Can. Nat.	5163	162	162	162	
222	200	8	3.8	Bk. Montreal	1202	205	206	200	200
310	300	12	3.9	Bk. N. Scotia	65	303	304	302	302
235	239	10	3.9	Bk. Toronto	25	252	252	250	250
5	4½			Barcelona	....	(4 bid — asked)			
7½	3			Barker's Bread	155	5	5	3	3
39½	20	2.50	7.6	Do. pref.	105	28	32½	30	32
8¼	4½	25c		Bathurst Pr.	90	5½	5½	5	5
3½	2			Do. (B)	290	12	14	12	14
1.50	.50			Bawlf Grain	200	1.00	1.00	1.00	1.00
17	15			Do. pref.	....	(12 bid — asked)			
3.00	1.50			Beath & Sons	....	1.50 bid 2.35 asked			
8¼	4½			Beatty Bros. A	....	(3 bid 6 asked)			
10½	9¾	6	5.9	Do. pref.	....	(101 bid — asked)			
97	90	7	7.8	Do. 2nd pref.	....	(— bid 95 asked)			
5½	2			Beauharnois	1865	4	4	3½	4
95	90	4	4.4	Belding Cort.	....	(— bid 100 asked)			
141	131	8	5.9	Do. pref.	....	(— bid 130 asked)			
178	159	8	4.7	Bell Telephone	1227	169	169½	159	161¼
8	6	62½c		Biltmore Hats	150	7¼	7¼	7	7
5	3½			Blue Ribbon	....	(3½ bid 5 asked)			
32½	25	2.50	7.8	Do. pref.	....	(28 bid 31 asked)			
24½	17½	1.20	7.3	Brant. Cord. pf.	101	19	19	17½	18
12¾	5½			Brazilian Tr.	10278	7	7¼	5½	6½
5	3½	50+25c		Brew. & Distil.	....	(3 bid 3½ asked)			
6¼	6½	30c	4.8	Bright, T. G.	....	(4½ bid 11 asked)			
89	80	6	7.5	Do. pref.	....	(75 bid 90 asked)			
8½	6½	50c	4.8	Brit. Amer. Oil	5178	20¾	21	18¾	20¼
18½	11			B. C. Packers	149	15	15	12	12
28¾	21½	2	7.7	B. C. Power A	168	25	27	24	24
3	2			Do. (B)	90	21	21	21	21
3½	2			Bruck S. Mills	100	31	31	31	31
18¾	13½	1.20	7.5	Building Prod.	4760	16¼	17	15	15
12¾	9½	60c	5.6	Burlington Steel	825	10½	10¾	10¾	10¾

C

8½	7⅞			Calgary Power	....	(7⅞ bid 7⅞ asked)			
99¼	93½	6	6.2	Do. pref.	10	99	96¼	96¼	96¼
5½	2			Canada Bread	220	4½	4½	4	4½
105	97¼	5	5	Do. pref.	....	(95½ bid 102 asked)			
60	49	2.50+75c		Can. Bk. Comm.	5	60	55½	55½	55½
5	3½	40c	10	Canada Bud	110	4	5	3½	3½
61	59	1	7.5	Canada Cement	1370	61	61	54	60
102½	88	5	5.5	Do. pref.	52	88	90	88½	88½
105	101	1.55		Canada Cycle, p	25	102	101½	101½	101½
28½	22	1.50	5.5	C. & D. Sugar	1540	26½	28½	25	28½
1.20¼	1.12	50c		Canada Dry	10800	16½	17¼	14½	15¼
13	7			Can. Forg. (A)	155	10	10	7	10
10	7			Do. (B)	25	10	9	9	9
20	20			Can. Iron	....	(— bid — asked)			
55	50	5	9.1	Do. pref.	....	(56½ bid 70 asked)			
38	30	1.50+50	6.2	Can. Malting	365	30	32	31	31
18	13½	1.20	7.5	Can. Nor. Pr.	25	16	15½	15½	15½
112	107	7	6.3	Do. pref.	67	111	110½	106	106
90	68	3+1	5	Can. Packers	135	81	82	82	82
*7	1½			Can. Paving, pf.	....	(— bid 2 asked)			
153	140	8	5.4	Can. Perman.	32	145	148	145	145
7½	6			Can. Starch	....	(6 bid — asked)			
108	106	7	6.5	Do. pref.	....	(109 bid — asked)			
2.63	1.00			Can. Steamship's.	142	1.50	1.50	1.50	1.50
105	6	50c	7.5	Do. pref.	51	7	6½	6	6½
14*	10½	1.20	10.9	Can. Vinegars	80	11¼	11	11	11
65	55	4	7	Can. W. Cable	....	(— bid 57 asked)			
22	14	25c		Do. (B)	....	(— bid 15½ asked)			
107½	101	6.50	6.4	Can. Wire	5102	102	102	102	102
1	1			Can. Bakeries	....	(— bid 11 asked)			
45	25			Do. pref.	....	(— bid 29 asked)			
179	159	8	4.9	Can. Bk. Com.	106	162	163	160	160
1.80	.90			Can. Breweries	150	1.00	1.00	.80	.80
12	10		10.8	Do. pref.	315	18	18½	17	17½
39	30	1.50	5	Can. Bronze	10	34	30	30	30
106	105	5	4.8	Do. pref.	....	(105 bid — asked)			
4½	2½			Can. Canners	255	3	4	3	4
19	16½		5.8	Do. 1st pfd.	95	17	17½	17	17½
8	6	50c	8.8	Do. 2nd pfd.	640	7	7¼	6½	7
18	6½			Can. Car & Fy	5150	7	10	6½	9½
34½	17			Do. pref.	505	17½	20	17	20
20	10½	50+35c		Can. Celanese	580	16	17	14	14
111½	95	7	7.3	Do. pref.	70	102	110	100	100
21	17½	1	7	Do. Rights	....	(18 bid 21 asked)			
8	4			Can. Convert.	....	(5 bid — asked)			
67	63	4	6.1	Can. Cottons	6	65½	66½	65½	65½
105	100	6	5.9	Do. pref.	4	104	102	102	102
23½	14		6.7	Can. Dredge	70	21	21	14	14½
102½	96½	6	5.8	Can. Fairb. pf.	....	(96½ bid — asked)			
13	6	70c	10.8	Can. For. Inv.	10	6	6½	6½	6½
100	90	8	8.9	Do. pref.	....	(— bid — asked)			
255½	200	6	2.4	Can. Gen. Elec.	....	(240 bid — asked)			
94	7	50c	5.7	Can. G. Inv.	1810	1.80	1.90	1.75	1.75
2.87	1.50	10c		Can. Ind. Alc.	....	(1.65 bid — asked)			
2.87	1.25	10c		Do. (B)	26	207	210	210	210
225	192½	7	3.3	Can. Indust. B.	....	(170 bid 173 asked)			
.75	.25			Do. pref.	....	(— bid .30 asked)			
46	40	2		Can. Int. I. Tr.	60	50	3.20	6	Montreal Tele.
15	14	1	7.2	Can. Lt. & Pr.	....	(134 bid 18 asked)			
8	4			Can. Locomo.	190	5½	5½	5½	5½
20	18			Can. Mach'y. p.	....	(20 bid — asked)			
1.25	.75			Can. Marconi	2265	.90	.95	.85	.85
20	13½	50+37½c	6	Can. Oil	....	(12 bid 14½ asked)			
132	106	8	6.9	Do. pref.	15	115	115	115	115
6¾	3			Can. Pacific	9034	3½	4½	3	4
.70	.30			C. Pr. & Pa. Ln.	....	(.50 bid 1.00 asked)			
4½	3½			Do. pref.	....	(3½ bid 4 asked)			
10	2			Can. Vickers	630	2½	2½	2	2½
41	10			Do. pref.	70	11	10	10	10
15	9	50c	5	C. Wallpaper A.	25	10	10	10	10
13	9	50c	5	Do. (B)	25	(9 bid 12 asked)			
60	48	1.87½		Can. West'ho'se.	....	(50 bid 53 asked)			
4	3	25c		Can. Wineries	60	3¼	3¼	3¼	3½
204	142	1.50	10	Can. Wire Box.	45	142	145	142	144
2.00	.80			Capital Estates	....	(.75 bid — asked)			
108	103½	5	4.8	Carnation, pfd.	....	(105½ bid — asked)			
9¼	6	50c	5.9	Catelli Food	11	9	9	8½	9
13	11	75c	6	Do. pref.	10	12½	12½	12½	12½
4½	2½			Celtic Knit	....	(— bid 1.75 asked)			
165	130	5	4.5	Cent. Can. L'n	....	(— bid — asked)			
100	100	4+1	5	Chart. Trust	....	(— bid 100 asked)			
.70	.14			Chem. Research	200	.14	.15	.15	.15
1.10	.10			Chip Gas & El.	170	(.10 bid — asked)			
.15	.05			Claude Neon	....	(.10 bid — asked)			
1.35	1.10	12c	10.1	Coast Brew.	300	1.19	1.15	1.15	1.15
8¼	5			Cockshutt Plow	390	5	6	5	6
2.50	1.50	10c		Comm. Alcohol	1120	1.75	1.80	1.50	1.80
54	41	40c	8	Do. pref.	125	51	5	5	5
4	3	30c	10	Conduits Nat.	....	(2 bid 31 asked)			
17¼	14	1+15	7.1	Cons. Bakeries	360	15	16	14½	14½
.05	.05			Cons. Div. Sec.	....	(.05 bid — asked)			
81	64	75c		Do. pref.	25	6	6½	6½	6½
78	28			Cons. Paper	9393	31	31	31	31
7	5			Cons. Press	25	6	6	6	6
75	60	1.75		Cons. Sand, pf.	25	60	60	60	60
61¼	37½	1+1	4.2	Cons. Smelters	5831	41	47	39½	47
183	175	10	5.7	Consumer's	22	175	176½	175½	175½
37½	20½			Corr. P. Box. p.	....	(20½ bid 30 asked)			
22	16½	1	5.6	Cosmos Imp. p.	5	18	18	18	18
105	101	5	4.8	Do., pref.	....	(103 bid — asked)			
29	21	1.60	5.9	Crown Cork	75	27	28½	24½	24½
5	2			Crown Dixie & Oil	....	(2 bid 2½ asked)			
25	24	3		Crow's N. Coal.	....	(20 bid 24 asked)			
3.50	.50			Cub. Aircraft	125	.50	.90	.50	.80

D, E

17	11	60+30c	8	David & Fre. A	132	12½	11½	11	11
24	14			Do. (B)	61	14	12	11	11
14	5			DeHavilland	10	7¼	7¼	6½	6½
90	70			Do. pref.	....	(80 bid — asked)			
21	3½			Disher Steel	....	(22 bid 41 asked)			
9	9			Do. pref.	....	(— bid 9 asked)			
204	152	2	11.8	Distill-Seagram	2740	17	17½	15	15½
90	83	5	5.5	Do. pref.	....	(— bid 90 asked)			
30	30			Dom. Ang. Inv.	....	(30 bid 48 asked)			
75	75	5+2.50		Do. pref.	....	(70½ bid 84 asked)			
210½	195	10	4.6	Dom. Bank	17	202	206	195	195
37½	23½	1.20	4.4	Dom. Bridge	843	25	28	25	28
19½	15	1.50	6.4	Dom. Coal, pf.	665	17½	17½	15	17½
38	20			Dom. Engineer	158	22	28	20	28
25	19	90c		Dom. Foundries	1245	21	23½	22	23
106½	104	7	6.7	Do. pref.	....	(— bid 106½ asked)			
115½	105	5	4.4	Dom. Glass	25	113	113	113	113
165	146½	7	4.3	Do. pref.	35	162	160	160	160
33	30	30c		Dom. Oilcloth	....	(26 bid 30 asked)			
2	2			Dom. Scot. Inv.	....	(— bid 1 asked)			
30	25½	1.20		Do. pref.	....	(— bid 28½ asked)			
12½	7½			Dom. Sr. & C.B.	16899	9	11½	8½	9
7½	3			Dom. Stores	540	5	5½	4½	5
7	3½			Dom. Tar & Ch.	635	4	4½	3½	4
90	60	5.50	6.9	Do. pref.	....	(— bid 85 asked)			
71	65	5	7.2	Dom. Textile	365	69	71	69	71
161	147	7	4.4	Do. pref.	20	161	160	156	156
5½	2			Donnacona P.A.	645	2½	3	2½	3
5½	2			Do. (B)	100	2½	2½	2½	2½
6½	3			Dryden Paper	160	3¼	3½	3½	3½
.75	.30			East Koot. Pr.	....	(— bid 1.00 asked)			
6½	6			Do. pref.	....	(6 bid — asked)			
.60	.45			East Dairies	25	.45	.50	.50	.50
4½	2			Do. pref.	....	(2 bid 3 asked)			
17	11		7.4	East Steel pf.	....	(12 bid 14½ asked)			
98	65	7	7.5	East Theat. pf.	....	(62 bid 95 asked)			
2.87	1.50			Easy Washing	....	1.60 bid 2.15 asked			
30	22	2.25		Economic Inv.	....	(20 bid 25 asked)			
15	6	1.20	13.7	Electrolux	338	8	9½	8	8
1.25	.75			Enam. & Heat.	75	1.00	.90	.90	.90
33	25	2.50	8.3	English Electric	....	(— bid 34 asked)			
6½	2			Do. (B)	2	5	2	2	2
8	5	15c		Equitable Life	....	(— bid 6 asked)			
14	5½	60c	11.4	European El. A	....	(11 bid — asked)			
*.10	.01			Do. Warrants	....	(.01 bid — asked)			

F, G

6	2½		4.8	Fairchild Air	665	3½	3½	2½	3½
23½	18	1	4.3	Fam. Players	75	22	21½	20½	20½
24	19	1+50c	6.8	Famy Farmer	2605	21	22½	20	21
4½	2			Fleet Aircraft	400	3½	4½	4	4½
3½	1			Fleury Biscuit	....	(1 bid 3½ asked)			
23	22			Do. pref.	25	20	20	20	27
5.50	4.50		5.6	Ford Motor A	4670	17½	18½	16½	17½
22	17½	1	5.6	Do. (B)	....	(18 bid 19 asked)			
38	15			For. Pr. Secs.	200	.20	.20	.20	.20
11½	6½			Foundation Co.	175	7½	7½	6½	6½
17	5			Fraser Cos.	25	6½	6½	6½	6½
17½	5			Do. Vot. Tr.	2047	7	6	5	7½
.30	.25			Freiman, c.	....	(— bid — asked)			
28	25½			Do. pref.	....	(— bid 33 asked)			

74	4	70c	10.8	Do. pref.	325	7	6½	6	6
55	55	2	3.6	Ottawa Car	....	(— bid — asked)			
8½	4			Ottawa El. Ry.	25	7	7	7	7
15	14	1	7.2	Ott. L. H. & Pr.	....	(14 bid — asked)			
102	98	5	5.1	Do. pref.	16	100	99½	98	98

P, Q, R

				Pacific Coyle	....	(12 bid — asked)			
104½	93		4.1	Page Hersey	1150	101	100½	96	100
11	7			Pembina Oil	100	11	11	11	11
12	5			Paton Mfg.	....	(— bid — asked)			
110	100	7	7	Do. pref.	....	(— bid 65 asked)			
43	38	2	7.3	Penmans	1304	115	116	115	116
121	91	70c	5.6	Lang, J. A.	1304	115	116	115	116
3	2½			Langley's	....	(— bid 13 asked)			
25½	20	1+		Do. pref.	....	(— bid 25 asked)			
134	101	80c	6.9	Laura Secord	910	111	111	101	101
84	44			Legare, pref.	....	(4 bid 71 asked)			
54	4			Lindsay, C. W.	....	(— bid 4 asked)			
*78	66			Do. pref.	....	(— bid 70 asked)			
27½	22	1+25c	4.8	Loblaw (A)	1004	26½	27	25	25½
24½	21	1+25c	5.3	Do. (B)	951	23	24	21½	22½

M

1.05	.50			Mackenzie Air	225	.50	.50	.50	.50
2	2			MacKin. Steel	....	(— bid — asked)			
65	55	7		Do. pref.	....	(— bid — asked)			
15	8			Maclaren Pr. pr.	140	9	9	8	8
6	3½			M. L. Gardens	....	(4 bid — asked)			
9	5	70c	10	Do. pref.	271	7	7	5	7
2.75	1.00			Maple Leaf	9065	2.00	2.75	2.00	2.00
1.05	.90			Do. pref.	375	41	6	5	6
16	15½	7+2½c		Maritime Tele.	....	(— bid — asked)			
17	16½	70c	4.2	Do. pref.	....	(— bid — asked)			
154	151½			Marcus Loew's	....	(— bid — asked)			
*115	115	7+21c		Do. pref.	....	(— bid — asked)			
71	22			Massey-Harris	5793	4	4½	2½	3½
60½	29½			Do. pref.	1100	38	38½	30	32
71	5			McColl Fron.	825	51	54	51	54
95	82½	6	6.6	Do. pref.	321	90	91	88	88½
1.50	1.20			Melchers	....	(— bid 1.60 asked)			
6	4	60c	12	Do. pref.	366	5	5½	5	5
14	11			Mercantile Tran	....	(12 bid — asked)			
5	3½			Do. pref.	....	(4½ bid — asked)			
1.75	.65			Mercury Mills	....	(— bid 11 asked)			
88	.40			Chromium	....	(5 bid — asked)			
2.50	1.50			Coast Copper	10	50	50	50	50
2.00	1.00			Metal Prod.	....	(112 bid — asked)			
2.34	1.15			Coniaurum	13900	1.41	1.48	1.15	1.20
.30	.10			Con. Chibougamau	1600	.11½	.12	.12	.12
61.25	37.50			Cons. Smelters	5831	61.00	47.00	38.50	47.00

D, E

1.16	.05			Darkwater	1000	.04	.04	.04	.04
1.16	.05			Denison Nickel	4800	.08	.08	.05	.05
34.25	28.00			Dome Mines	4040	32.00	32.50	28.00	29.12
.03	.02			Dom. Explorers	2000	.02	.02	.02	.02
.09	.03½			Duparquet	14000	.02½	.02½	.02	.02½
.08	.02			Duquesne	10900	.11	.11	.08	.08
2.85	2.01			East Malartic	75600	2.40	2.50	2.01	2.15
2.36	.74			Eldorado	25528	.83	.92	.74	.81

F, G

6.00	4.50			Falconbridge	4,425	5.15	6.00	5.00	5.50
.08½	.02½			Federal	6,300	.03	.03½	.02½	.02½
.17	.03			Fernland	500	.03	.03	.03	.03
.77	.15			Francoeur Gold	131,900	.35	.42	.22	.29
.14	.04			Gillies Lake	12,300	.06½	.06½	.05	.05
.05	.01½			Glenora	1,000	.02	.02½	.02½	.02½
.49	.20			God's Lake	55,562	.39½	.44	.35	.38
.63	.29			Goldale	6,550	.16	.19½	.16	.16
.63	.29			Gold Belt	(.27 bid .29 asked)				
.08½	.04½			Gold Eagle	12,500	.08½	.10½	.09	.09
.03½	.01			Goodfish	5,500	.01½	.01½	.01	.01
.02	.01			Graham Bousquet	(.01½ bid .03 asked)				
.07	.04½			Grandora	1,000	.04½	.04½	.04½	.04½
.02½	.02			Grull Wihksne	(.01½ bid .04 asked)				
.64	.35			Gunnar Gold	8,450	.45	.46	.35	.35

H, I, J

.03½	.01			Halcrow Swayze	4,000	.01½	.02	.02	.02
.08	.02			Hallwell Gold	5,500	.02½	.02½	.02	.02
1.95	.70			Hard Rock	29,435	.89	.93	.70	.75
.10	.05½			Heath & Sher	8,600	.07	.08	.05½	.05½
1.88	.55			Hedley Mascot	2,000	.59	.60	.55	.55
15.50	12.50			Hollinger	5,869	14.50	14.75	12.50	13.00
.37	.24			Howey Gold	16,800	.30	.30½	.25	.26
36.50	28.50			Hudson Bay	7,259	32.25	34.00	29.50	33.25
.65	.19			Inspiration	2,700	.20	.22	.19	.19
9.25	7.00			Inter. Mining	(7.00 Apr. 20)				
74.75	42.75			Int. Nickel	20,390	48.00	52.50	46.00	51.25
1.26	.85			Inland Mountain	1,100	.90	.90	.85	.85
.03½	.02½			Iso	3,000	.03½	.04	.02½	.02½
.34	.12			Jack Waite	300	.20	.25	.25	.25
.18	.10			Jellicoe	200	.15	.14½	.14½	.14½
.11	.03			J. M. Cons. Gold	2,100	.03	.03½	.03	.03½
.06½	.02½			Joliet Quebec	3,000	.03	.02½	.02½	.02½

K, L

2.14	1.47			Kerr Addison	62,821	1.80	1.94	1.55	1.68
.65	.30			Kerr Lake	100	(.35 bid — asked)			
.10	.03			Kirk. Gold Rand.	500	.03	.03	.03	.03
.73	.30			Kirk. Hud. Bay	(.15 bid .32 asked)				
1.75	1.01			Kirkland Lake	33,890	1.25	1.32	1.01	1.14
.13½	.07			Kirk. Townsite	(.07½ bid — .12 asked)				
50.50	33.75			Lake Shore	2,818	38.25	39.87	34.75	36.00
7.30	5.50			Lamaque Gold	14,672	6.40	6.65	6.20	6.40
.54	.10			Lapa Cadillac	9,850	.15	.18	.10	.10
.85	.59			Lava Cap	2,400	.73	.75	.75	.75
.08½	.02			Lebel Oro	10,000	.03	.02½	.02	.02½
.90	.58			Leitch Gold	27,200	.72	.76½	.58	.58
3.60	.235			Little Long Lac	6,725	2.50	2.70	2.35	2.60

M

5.90	3.50			Macassa	11,455	4.20	4.35	3.50	3.90
3.20	1.35			MacLeod Cockshutt	24,070	1.53	1.71	1.35	1.42
.55	.22			Madsen Red Lake	14,050	.32	.33	.22	.25
.75	.35			Malartic Gold	27,400	.48	.48	.35	.36½
.17	.06			Mandy	1,500	.10	.15	.10	.15
.02½	.00½			Man. & Eastern	(.01 bid .02 asked)				
.07	.02½			Maralgo	3,000	.03	.03½	.02½	.02½
59.63	49.75			McIntyre	1,421	55.50	56.12	53.00	53.00
1.38	1.00			McKenzie R. L.	13,950	1.14	1.20	1.00	1.06
.20½	.06			McVittie Graham	10,000	.12	.14	.10	.10
.75	.35			McWatters	9,800	.41½	.50	.41½	.45
				Mercury Exploration	(.— bid .47 asked)				
2.05	1.00			Mining Corp	2,210	1.10	1.30	1.00	1.30
.05	.01½			Minto Mines	(.01 bid .05 asked)				
1.45	.65			Moneta	23,450	.85	.92	.65	.75
.20	.04			Morris Kirk	31,900	.07½	.07	.04	.05
.02½	.01			Murphy	1,500	.01½	.01½	.01½	.01½

ent Bonds

Investment			Dealers' Assoc. of Canada		
Bid	Approx. Ask	Yld.		Bid	Approx. Ask	Yld.
30	110	3.73	4 Mar. '52	100	102	3.70
10	112	3.74	4½ Aug. '58	102	104	3.70
11	113	3.82	4½ Jan. '63	106	107	3.80
30	111	b3.45				
11	114	b3.76				
11	116	b3.76				
Gov't. Bonds						
ek:						
80	99	4.05				
90	92	4.24				
89	91	4.25				
97	100	4.00				
01	104	4.22				
03	108	4.40				
90	92	3.80				
94	97	3.48				
98	98	3.70				
03	105	b3.76				
05	107	4.01				
10	113	4.06				
96½	98½	2.79				
90	93	3.97				
98	92	3.87				
93	95	3.75				
00	102	3.87				
02½	104½	4.00				
03	106	4.09				
03	105	4.33				
10	114	4.02				
04	107	4.30				
mmission:						
90	93	3.94				
92	95	3.72				
95	97	3.96				
d Island:						
94	98	3.36				
90	92	4.16				
88	90	4.02				
94	96	3.80				
94	96	3.63				

d Stocks

Pattison Jr. & Co., Toronto)

..	12½	13½	Crown, fully pd.	260	..
p	58	..	Dominion Fire .	134	..
..	70	..	D. of Can. Gen.	120	125
..	21	23½	Empire, 25% pd.	71	84
p	103	..	Excelsior Life	59	63
fd	99	100½	Fed. F., 25% pd.	51	53
pf.	30	..	Great-West Life	235	245
p	85	..	Halifax Fire ...	201	214
ne	8	8½	Imperial Life ...	315	330
p	27	30	Manufac. Life ..	235	245
ni	31	41	Monarch, 10% pd	22	34
	14	24	Sov. L., 25% pd.	12	..
	45	51	Sun Life	380	385
pf.	55½	57	Tor. General ..	54	6
	18½	22	Western Assce..	50	51½
	52½	56	**Theatre Stocks:**		
	24	24	Allens, King., p.	54	60
pf.	20	21	Do., London, p.	50	56
rts.	23	24	Do. St. Cath., p	54	..
pf.	24	32	Do., Tor., p. c.	30	36
	34	51	Mansf. Theat., p.	30	33
	..	64	Midland Prop., p	3	..
an Stocks:			Para., Kitch., p.	53	..
..	152	155	Do., Oshawa, c	11	15
	24	34	**Investment Trust Shares:**		
	96	100	Can. Investors .	54	6
50	52	55	Deb. & Sec., pf.	70	..
	32	34½	Inv. Found. Unit	53	58
nt.	39	41½	Sec's. Hold., pf.	17	19
	120	..	United Corp., A	20	22
	52½	60	Do., B	42	64
C.	10	11½	**Power Issues:**		
		82	Can. W. N. Gas	24	..
	27	28	Do., pfd.	96	97½
	98½	..	Int. Util., 1.75 p.	15	17½
ocks:			Do., 3.50 pfd. .	32	36
	54	..	Gt. Lakes Pr., p.	100	101½
	478	488	Mtl. Lt. Pwr., p.	20	..
d.	132	155	Nor. Ont. Pr., p.	95	97

Mines

ember 5, 1939

	Bid	Ask		Bid	Ask
Lw Pete	.20	.25	Polaris	.35	.40
Lucky K	.01	.02	Private'r	.33	.35
Magnet C	.55	.58	Propri'y	1.65	1.80
Magnet L	.11	.13	Presdor	.02½	.03½
Martin Br	.03	.04	Queb Mn	.13	.15
Martin M	.07	.10	Rand Mal	.07	.10
Margaret	.10	.14	Red LGS	.01½	.02½
Mata Can	.04	.05	Rhyolite	.03½	.04½
Melba	..	.03	Rose Gld	..	.07
Mof Hal n	.02	.03	Rouyn Re	.01	.01½
McGregor	.01	.02	Sachigo	5.00	6.00
McVit Kir	.00½	.01½	Shenango	.05½	.06½
Mooshla	..	.04	Sheldon	..	.05
Mosher	.08	.10	Siscoe Ex	.01½	.02½
Mylamaq'	.02½	.03	Skynner	.04	.06
Nat Mal	.15	.18	Smelter	.02½	.03
Negus	.50	.70	Spooner	.04	.06
New Aug	..	.20	Steep Rk	.73	.80
New Rib'o	.03½	.04	Sunbeam	.05	.06
Nickel O	.75	.85	Sun Bear	.00½	.01
Noriake	.01½	.03	Surf Inlet	.12	.17
Norbeau	..	.45	Springer	.04	.06
Okland	.07	.08	Thomp L	.18	.20
O'Leary	.01½	.02½	Tonawa'a	.00½	.01
Opemiska	.09	.10½	Union Mn	.04	.05
Oriole	.01½	.02½	Upper Cn	.44	.47
Orpit	.02	.04	Walker P	.03	.05
Ossian	.01½	.02½	Wesley	.01	.01½
Pascalis	..	.30	Wells LL	.12	.16
Payore	.01½	.02½	Westwood	..	.02½
Pore Lk	.04	.06	Winoga	..	..
Planet	.01½	.02½	cum rts	.04	.05
Pontiac	.08½	.10½	Woco	.07	.09
Pelangio	.01½	.02½	Y David'n	.19	.23

ember 5, 1939

Obalski	.04½	.05½	Tiblem't I	.02	.03
Pan Can	.03	.04	Valdor M	..	.03
Routh'r C	..	.03	Warren'c	..	.05

Mining Dividends

	Rate	Close Sept. 5	Yield %
Seattle Gold	15c	1.00	15.0
Bralorne	80c+30c	9.10	*12.0
Buffalo Ankerite	$1	7.00	14.3
Dicnio Gold	$5	21.50	13.94
Can. Malartic	9c	.53	16.9
Cariboo Gold	16c+5½c	1.81	*11.8
Central Patricia	16c+5c	2.00	*10.0
Coniagas	25c	1.35	..
Coniaurum	15c	1.30	..
Cons. Smeliers	$1+$1	47.00	*4.2
Dome Mines	$2	29.12	6.9
Falconbridge	50c	5.50	5.4
Fed's Lake	15c	.38	..
Goldale	12c	.16	..
Gunnar Gold	6c	.40	15.0
Hedley Mascot	12c+4c	.55	..
Hollinger	65c+45c	13.00	*8.4
Howey Gold	3c	.26	..
Hudson Bay	$1.50	33.25	4.5
Inter. Mining	40c	7.00	5.7
Int. Nickel, com.	$2	51.25	3.9
Kerr Addison	10c	.85	11.8
Kirkland Lake	5c	.50	10
Kootenay Belle	16c+4c	.60	..
Lamaque Gold	40c+17c	6.40	*8.9
Lake Shore	$4	36.00	11.1
Leva Cap M.	15c	.75	..
Little Long Lac	30c	2.60	11.5
Macassa	20c+7½c	3.90	*7.0
McGillivray Coal	3c	.21	..
McKenzie Red Lake	12c	1.06	11.3
Moneta	9c	.75	..
McIntyre Porc.	$2	53.00	3.8
Pipissing	15c	1.15	..
Noranda	$4	80.00	5
North Empire	80c	9.00	8.9
Preston East Dome	↑10c	1.50	..
Premour Porc.	6c	1.75	..
Pato Cons.	10c	2.20	..
Pymaster	2c	.32	..
Perron Gold	16c+1c	1.50	*11.3
Pioneer, B.C.	40c	2.10	19.0
Pickle Crow	40c	4.00	10
Placer Develop.	$1.20	10.50	11.4
Premier	12c	1.20	10
Privateer Mine	20c+2c	.85	..
Quebec Gold	12c	.30	2.7
San Antonio	14c	1.59	8.7
Sheep Creek	16c+2c	1.02	*17.6
Shiak Prem.	12c	.95	12.6
Siscoe	12c	.90	13.3
Sudbury Basin	5c	2.25	..
Sullivan Cons.	5c	.65	..
Sylvanite Gold	20c+5c	2.80	*2.9
Teck-Hughes	40c+5c	4.00	*11.2
Thiburn	8c+6c	1.40	*10.0
Ventures	15c	4.25	..
Wright-Harg.	40c+30c	7.10	*2.8

*Yield including bonus. ↑Initial.

Dividends Declared (Continued)

Alton Mfg., pfd.	$1.75	Sept. 15	Aug. 31
Canadian Rylis.	3c	Sept. 5	Aug. 19
Central Oil	2c	Sept. 30	Sept. 15
Chickle Crow	10c	Sept. 30	Sept. 15
Cockshutt Plow	50c	Oct. 2	Sept. 15
Consumers Gas	$1.75	Sept. 30	Sept. 15
Do., pref.	$1.75	Sept. 30	Sept. 11
Dom. Rand pf.	$1.12½	Oct. 2	Sept. 11
Do., c	20c.	Oct. 2	Sept. 11
Dominion, H. & Sons	15c	Sept. 30	Sept. 16
Do., pref.	$1.75	Sept. 30	Sept. 20
Fleetwood Bros.	15c	Oct. 2	Sept. 20
Do., pref.	75c	Oct. 2	Sept. 20
Goodfish, H. Pap. pf.	$1.50	Oct. 16	Sept. 20
Sylvanite Gold	5c	Sept. 30	Aug. 15
Inset Oils	4c	Sept. 15	Sept. 5
Siscoe Gold	3c	Sept. 15	Aug. 28
South. Can. Pr., P.	$1.50	Oct. 16	Sept. 20
Stand. Steel, A pf.	75c	Oct. 1	Sept. 15
Steel Law. Flour, c.	150c	Oct. 2	Sept. 20
Tamblyn	20c	Oct. 2	Sept. 14
Do., pref.	62½c	Oct. 2	Sept. 14
Teck-Hughes	10c	Oct. 2	Sept. 8
Do., extra	3c	Oct. 2	Sept. 8
Toronto Elevats., p	65½c	Sept. 7	Aug. 24
Union Gas	20c	Sept. 15	Aug. 19
Walker-G. & W.	$1	Sept. 15	Aug. 25
Do., pref.	25c	Sept. 15	Sept. 15
Weston, Geo., c.	20c	Oct. 2	Sept. 15
Wminster Paper	25c	Nov. 1	Oct. 15
Wyll	25c	Oct. 2	Sept. 15
Wilson Stat., pf.	$1.25	July 15	June 30
Wood-Hargreaves	10c	Oct. 2	Aug. 25
Do., extra	5c	Oct. 2	Aug. 25

↑Initial. ‡Bonus.

DIVIDEND NOTICES

DIVIDEND

Chartered Trust and Executor Company

Notice is hereby given that a dividend of 1% has been declared on the paid-up Capital Stock of Chartered Trust and Executor Company for the quarter ending September 30th, 1939, payable October 2nd, 1939, to shareholders of record at the close of business September 15th, 1939.

By Order of the Board.
E. W. McNEILL,
Secretary.

Dated at Toronto, August 17th, 1939.

CANADA PERMANENT MORTGAGE CORPORATION

Notice is hereby given that a Dividend of TWO PER CENT. on the paid-up Capital Stock of the Corporation has been declared for the current quarter, and that the same will be payable

MONDAY, THE SECOND DAY OF OCTOBER

next, to Shareholders of record at the close of business on the Fifteenth day of September, 1939.

By order of the Board.
Walter F. Watkins,
Secretary.

Toronto, August 16th, 1939.

NOTICE OF DIVIDEND

Famous Players Canadian Corporation

LIMITED

NOTICE is hereby given that a quarterly dividend of Twenty-five Cents (25c) per share has been declared on all issued Common shares of the Company without nominal or par value, payable on Saturday, the 30th day of September, 1939, to shareholders of record, Friday, the 15th day of September, 1939.

By order of the Board,
THOS. J. BRAGG,
Secretary-Treasurer.

Dated at Toronto, this 30th day of August, 1939.

Canadian Westinghouse Company, Limited

DIVIDEND NOTICE

Notice is hereby given that a dividend of thirty-seven and one-half cents (37½c) per share has been declared upon the outstanding Capital Stock of the Company, payable October 1st, 1939, to Shareholders of record September 20th, 1939.

Cheques will be mailed to Shareholders.

By order of the Board,
W. E. SPRAGUE,
Secretary.

Hamilton, Canada, August 31st, 1939.

PICKLE CROW

GOLD MINES LIMITED
(No Personal Liability)

NOTICE OF DIVIDEND NO. 15

Notice is hereby given that a dividend of ten cents (10c) per share in Canadian funds has been declared, payable on Saturday, September 30th, 1939, to shareholders of the company of record at the close of business on Friday, September 15th, 1939.

By Order of the Board
ROBERT FENNELL, K.C.,
Treasurer

Toronto, Ont., Sept. 1st, 1939.

DIVIDEND NOTICE

English Electric Company of Canada, Limited

CLASS "A" SHARES

Notice is hereby given that the Board of Directors have declared a dividend of sixty-two and one-half cents (62½c) per share on the outstanding Class "A" shares of the Company, payable September 15th, 1939, to shareholders of record at the close of business on September 2nd, 1939.

AUBREY MUNDY,
Secretary.

THE B. GREENING WIRE COMPANY, LIMITED

Common Dividend No. 8

NOTICE IS HEREBY GIVEN that at a meeting of the Directors of The B. Greening Wire Company Limited held in the office of the Company July 31st, 1939, a dividend of Fifteen Cents per share on the Common Shares of the Company was declared payable October 2nd, 1939, to shareholders of record September 15th, 1939.

F. J. MAW,
Secretary.

Hamilton, Ont., September 2nd, 1939.

DIVIDEND NOTICE

Canadian General Electric Company, Limited

Notice is hereby given that a dividend of one dollar and fifty cents per share for the quarter ending September 30, 1939, has been declared on the Common Stock of the Company.

That the above dividend is payable on October 2, 1939, to shareholders of record at the close of business on September 15, 1939.

By Order of the Board.
W. H. NESBITT,
Secretary.

Toronto, August 31, 1939.

The Hamilton Cotton Company Limited

DIVIDEND NOTICE

Notice is hereby given that a Dividend of 50 cents per share has been declared on the arrears of Dividends of the outstanding Preference Shares of the Company, and will be payable on the 1st day of October, 1939, to the shareholders of record at the close of business on the 15th day of September, 1939.

By Order of the Board.
JOHN BOWSTEAD,
Secretary.

Hamilton, August 30th, 1939.

A. J. PATTISON JR. & CO. Ltd.
Established 1907
CORPORATION SECURITIES
Royal Bank — EL. 5101
TORONTO

Quebec Gets Peak Revenue

Province Has Large Overall Deficit in Year Ended June 30

From Our Own Correspondent

MONTREAL.—With both revenues and expenditures at a peak level the Province of Quebec reports a surplus on ordinary account of $4.8 millions for the year ended June 30, 1939. This compares with an ordinary surplus of $3 millions in the 1937-38 fiscal year.

Revenues for the year totalled $60.8 millions, an increase of 7.5 millions over the previous year. Tax revenues were $4.4 millions higher due to increased receipts from succession duties, gasoline tax and the corporation tax on capital. Natural resources yielded $2.6 millions more.

Ordinary expenditures increased from $50.3 millions to $55.9 millions. Expenditures of almost every department increased.

The reported surplus of $4.8 millions on ordinary account is before making provision for extraordinary expenditures such as relief costs and colonization and before capital expenditures.

Over-all Deficit Up

Extraordinary expenditures show a sharp reduction from $16.1 millions to $7.4 millions. This is due to replacement of direct relief by a programme of public works. For this reason most of the expenditure under the Unemployment Aid Act was charged to capital account although in many cases the expenditure took the form of grants to municipalities.

After taking into account extraordinary expenditures there was a deficit of $7.4 millions compared with $13.1 millions in 1937-38. On an overall basis, however (taking into account ordinary, extraordinary and capital expenditures) there was a deficit of $49.3 millions, against $35.1 millions in 1937-38.

Expenditure figures reveal a works programme as a more costly way of handling unemployment relief. Total expenditures under the Unemployment Aid Act amounted to $29 millions as against $13.8 millions in the previous year.

Debt shows a sharp increase. Net funded debt, plus temporary loans and deposits, amounted to $282.4 millions at June 30 last. This is an increase of $48.3 millions over June 30, 1938.

Ordinary Account
Revenue and Expenditure
Years Ended June 30

	1939 $000's	1938 $000's	1937 $000's
Revenue			
Taxation	42,748	38,371	31,924
Natural resources	10,034	7,476	6,484
Liquor profits	2,465	2,258	2,307
Federal subsidy	2,465	2,465	2,465
Interest	629	554	1,287
Miscellaneous	1,274	1,217	1,313
Total	60,836	53,344	46,280
Expenditure			
Debt charges:			
Interest	7,693	6,505	5,902
Sinking fund	3,490	3,155	3,782
Amortization	485	397	249
Civil service	3,580	3,324	3,023
Education	4,178	4,060	3,105
Public works	2,199	1,969	1,707
Agriculture	5,166	4,727	3,527
Labor	4,435	3,528	2,352
Colonization	3,389	2,922	2,166
Lands & forests	2,456	2,054	1,568
Roads	6,764	6,502	5,315
Attorney-general	3,973	3,649	2,546
Health	2,260	2,310	2,480
Prov. secretary	1,792	1,576	1,112
Other expenses	4,088	3,678	2,476
Total ord. exps.	55,948	50,336	42,311
Ordinary surplus	4,888	3,008	3,969
Extraordinary Expenditures			
Relief costs	4,930	12,447	10,158
Colonization	110	1,540	5,373
Public Charities Fd.	2,261	2,147	1,705
Miscellaneous	250	22	120
Total	7,431	16,156	17,356
Deficit after extraordinary exps.	2,543	13,148	13,387
Capital Expenditures			
Unemployment aid	24,176	1,370	4,187
Roads	13,767	14,165	5,766
Colonization	5,292	5,363	....
Other items	3,494	1,062	168
Total	46,729	21,959	10,121
Overall deficit	49,372	35,107	23,508

Debt Position
As at June 30

	1939 $000's	1938 $000's	1937 $000's
Gross fund. debt	296,673	257,576	195,170
Less: Sink. fund	29,677	25,351	21,527
Def. payments	12,277	12,527	12,765
Net funded debt	252,719	219,698	160,878
Treasury bills	25,000	9,500	22,250
Trust deposits	4,770	4,961	5,094
	282,489	234,159	188,222

DIVIDEND NOTICES

POWER CORPORATION OF CANADA LIMITED

The Board of Directors has declared this day the following dividends:

6% First Cumulative Preferred Stock

No. 57 quarterly, $1.50 per share.

6% Non-Cumulative Participating Preferred Stock (par value $50)

No. 49, quarterly, 75c. per share. Payable October 16th, 1939, to holders of record at close of business September 30th, 1939.

L. C. HASKELL, F.C.I.S., Secretary.

Montreal, August 25th, 1939.

Central Patricia Gold Mines Limited

DIVIDEND No. 13

EXTRA DIVIDEND No. 5

A dividend of 4c per share, and an extra dividend of 1c per share, making 5c per share in all, have been declared by the Directors on the capital stock of the company, payable the thirtieth day of September, 1939, to shareholders of record at the close of business on the fifteenth day of September, 1939.

Dated at Toronto this 31st day of August, 1939.

ALAN COCKERAM,
Secretary-Treasurer.

SOUTHERN CANADA POWER COMPANY, LIMITED

The Board of Directors has declared this day the following dividends:

6% Cumulative Participating Preferred Stock

No. 79, quarterly, $1.50 per share, payable October 16th, 1939, to holders of record at the close of business September 30th, 1939.

L. C. HASKELL, F.C.I.S., Secretary.

Montreal, August 25th, 1939.

Cabinet Seeks To Hold Down War Controls

Will Limit Rigid Regulation By Public Necessity

CO-OPERATION SOUGHT

From Our Own Correspondent

OTTAWA.—Two control bodies already have been announced—the Price Control and Trade Board, and an official censor—and further control bodies may be set up by Ottawa at any time.

There is a strong disposition among cabinet ministers to avoid controls as much as possible but it is recognized that the public interest may demand action. Censorship is as inescapable in war as the fighting itself. The food and trade control body was only created after floods of telegrams alleging profiteering in foodstuffs had reached the Cabinet.

The Cabinet has evinced a definite desire to go as slow as possible in restraining the ordinary life of the country. Moreover, the mere appointment of control bodies will not mean direct interference in business activity. The first stage, which the Government hopes will be effective, will be supervision in a broad way and dependent for success upon the co-operation of the general public and of businessmen.

Would Avoid Regimentation

If supervision fails to prevent profiteering and exploitation will the Government go in for direct control, licensing and all the rest of the paraphernalia of regulation? As one minister put it:

"We want to be sure that we do not come out of this war with a dictatorship economy. We are fighting for freedom, for exaltation of personality, for individualism, and we do not want to ape the dictators even if we are at war. The less controls we require, the easier it will be to restore the country to normal when peace comes."

The Price Control and Trade Board is under the chairmanship of Hector McKinnon, well known to industrialists throughout the country as tariff expert of the Finance Department. With him are Fred McGregor, chief of the combines branch of the Department of Labor, and David Sim, Commissioner of Excise. All three are outstanding among the younger civil service chiefs. They are men of first-rate ability and of proved administrative capacity.

None of them is being relieved of his regular work so that this control body could be wiped out by the stroke of a pen. Nor will they gather about them a large staff. The staff, likewise, will be drawn from existing government employees. The Government is taking no chances on creating an unmanageable bureaucracy.

Need Co-operation

But such a body, obviously, cannot control industry or business in a detailed way. All three have an intimate knowledge of industry and trade and are ideally fitted to exercise supervision. But to succeed they will have to have the full co-operation of businessmen and the general public.

Their job will be to prevent hoarding, profiteering in food supplies, fuel or other necessities of life. Under the order-in-council creating the board it is made an offence to "unduly prevent or lessen the manufacture, shipping or distribution of any necessary of life or to sell or offer for sale any necessary of life at a price higher than is reasonable."

They will be given an advisory committee drawn from all sections of the country.

Walter Thompson, publicity commissioner of the Canadian National Railways, is the chief censor of Canada. He, too, begins his job with the clear-cut intention of functioning by co-operation and not by the use of mandatory power.

Profiteering Reported

These appointments appear to have gone far to reassure a somewhat nervous public, particularly the appointment of the Price Control and Trade Board. Last Saturday sugar was reported at Ottawa to have sold as high as 12 cents per pound at Montreal, although enquiries showed that there had been no advance in the price at refineries. If necessary, this sort of profiteering will be defeated by the fixing of prices.

Likewise, there were reports from various parts of the country that flour was unobtainable or was being sold at extremely high prices. That there should be a flour shortage anywhere in Canada with surplus wheat stocks as great as they are and wheat prices at existing levels, amazed the Cabinet.

The explanation seems to be that the milling companies have been unable to purchase wheat since the onset of the crisis because prices invariably have leaped the full limit of five cents daily, without any wheat being offered for sale. Flour production has been curtailed. It is expected that this situation will right itself automatically when price levels rise above 70 cents per bushel.

Intentions Change

Meantime, the original trend of thought in the Cabinet toward control bodies has been reversed. As already stated, the inclination now is to avoid control as much as possible and nowhere is this disposition more evident than in the matter of wheat.

Late last week it seemed almost certain that the present wheat board, which is voluntary, would be revamped and made compulsory. It was felt that as Britain's wheat purchasing is now centralized in the hands of James Ranke, an outstanding British miller, the wise thing to do would be to centralize Canadian selling.

The Government was ready to reserve the whole of Canada's wheat stocks for Britain, if the British Government thought this necessary. But no such request came from London and it has been most annoying to ministers at Ottawa to see wheat for which the Government has paid 80 cents per bushel, bought by Britain on the open market for less than 60 cents—this in the presence of war and the certainty of dollar wheat.

Farmers Competent

It is argued, however, that western farmers are quite competent to safeguard their own interest in the matter of price, and the Government would be best advised to leave them in possession of the new crop.

Prior to the outbreak of war, the Wheat Board insisted that the provisions of the statute requiring a constant offering of the Board's wheat on the market were being obeyed. The Board repudiated stories to the effect that its stocks were being held off the market.

But since the outbreak of war, there can hardly be a doubt that the Board is holding its wheat. The Government is confident that when the 1938-39 carryover (for which 80 cents was paid) is sold, there will be no loss on Wheat Board operations. It is calculated, roughly, that dollar wheat would wipe out the deficit.

C.P.R. Expects Big Crop Haul

Beatty Cheered by Western Conditions — Sets War Policy

From Our Own Correspondent

MONTREAL.—A large and increased volume of grain for movement over Canadian railways is in sight, judging by a statement made by Sir Edward Beatty, chairman and president of Canadian Railway, upon his return from the West.

"I found western Canada in better shape," he said, "than I have seen it in for a long while. Despite the dry weather in late July and early August we will harvest a good crop, and one of the most gratifying features of it is the excellent yields of the central and western sections of southern Saskatchewan, which have not been equalled since the bumper crop of 1928.

Hard to Guage

"It is a very hard crop to gauge as to volume because not only have the outturns proved variable to a degree, but, in many cases, they have been far better than expected. However, an increase in the total of between 20% and 25% over last year is anticipated; the highest estimate yet made is 431 million bushels.

"Business on the whole is improving rapidly on the prairies and is generally good in British Columbia."

In respect to the company's possible wartime activities, Sir Edward said:

"The railways will, of course, cooperate to the fullest extent with the Government of Canada in making their facilities and services available for the movement of supplies, materials, etc., in an efficient and expeditious manner.

"All of Canadian Pacific's main shops have been surveyed, with a view to using them for the manufacture of munitions and, as required, they can be placed in that service on short notice."

Alberta Pacific Grain Volume Up

Company Organizes Own Pool to Aid Customers — Net Profit Higher

Alberta Pacific Grain Company handled a larger volume of grain through its terminal elevators in Vancouver in the year ended June 30, 1939, than it did in the preceding period, according to H. E. Sellers, president. Operating results were also better as illustrated by the rise in net profit to $16,201 from a net loss of $51,160, after allowing for substantially higher depreciation charges.

Regarding operations in the current year, Mr. Sellers says: "The Canadian Wheat Board is continuing to operate this year and the agreement for the handling of deliveries from producers to the Wheat Board has been renewed. In order to enable our customers to obtain the benefits of Government wheat price guarantees the company has organized a pool, under the Wheat Co-Operative Marketing Act (1939) for the handling of wheat not eligible for delivery to the Wheat Board."

Mr. Sellers states that the company "continues to maintain its properties in good operating repair." Capital expenditures of $98,582 have been incurred in rebuilding elevators and installing modern grain marketing equipment. The company received $15,628 from the sale of properties.

Annual meeting is being held in Vancouver on Oct. 10, 1939. A review of the financial statement will be found elsewhere in The Financial Post.

Loblaw Sales, Profits Up in 12-weeks Period

Sales of Loblaw Groceterias Co. in the four weeks period ended Aug. 19 increased 10.74% to $1,671,731, and profits increased 2.85% to $59,519.

In the 12 weeks ended Aug. 19, sales increased 9.85% to $5.3 millions, and profits were up 5.9% to $176,084.

Sales and Profits
Four-week Period Ended

June 24:	1939 $	1938 $	Incr. %
Sales	1,865,439	1,691,795	10.26
Profits	61,079	58,297	4.77
July 22:			
Sales	1,783,337	1,642,061	8.60
Profits	55,485	50,070	10.81
Aug. 19:			
Sales	1,671,731	1,509,641	10.74
Profits	59,519	57,872	2.85
12 Weeks Ended Aug. 19:			
Sales	5,320,507	4,843,498	9.85
Profits	176,084	166,239	5.92

Week in Wheat

Wheat Prices Jump On Outbreak of War

Quotations Rise Full Limit on Fluctuations on Successive Days — Farmers Hold Back Deliveries — Suggested Closing of Market Opposed

From Our Own Correspondent

WINNIPEG. — Actual outbreak of hostilities against Germany brought the machinery of the wheat market to a stop last week. Prices were marked up on successive days the full five cents per bushel, which is the limit put on daily fluctuations by the rules of the Winnipeg Grain Exchange. But no transactions were recorded, because no one would sell wheat.

Up until last Saturday the Canadian Wheat Board was still getting a considerable quantity of wheat delivered to it. But the Wheat Board would not sell at the prices quoted in the open market. No one could tell whether this was because it had already sold all its available wheat to the British Government, although that was not believed to be the case, or whether it was withholding supplies until the market should reach a level deemed reasonable under the new circumstances.

Offerings Withdrawn

Although some portion of wheat deliveries in the country was going to the Wheat Board up to the end of last week, farmers were putting the greater part of their wheat in storage and refusing to part with it at the Wheat Board basis for initial prices. Their attitude was more marked on Tuesday, the first market day after the declaration of war by Great Britain. They practically ceased delivering wheat to the Wheat Board. At the same time they refused to sell it in the open market at prices which for the first time this year were higher than the Wheat Board basis. Farmers further showed their belief in rising prices by buying up every pound of flour which could be obtained in the country and by trying to place orders for more. A limited number of farmers attempted to buy wheat in the futures market, an attempt quite futile, as no sellers were to be found there.

* * *

Prefer Open Trading

Last week there was a strong inclination to believe that the outbreak of war would see the immediate closing of the wheat market, with the Wheat Board doing all the buying and selling. A canvass of the situation shows that this would be a move extremely unpopular with farmers, and one the utility of which is arousing a good deal of doubt. Prices could rise far above present levels before farmers could be accused of profiteering at the expense of the Allied cause. So there is no need to close the market, at least for some time, to prevent prices from becoming extortionate. But if the market is closed, and the Wheat Board to all intents and purposes made a compulsory one, farmers will feel that this has been done to keep down the price of wheat, imposing on them an undue share of the national sacrifice.

* * *

Prefer Open Trading

On the other hand, it is possible that the authorities in Great Britain would more willingly pay an enhanced price for wheat based on open market transactions than based on bargaining with the Canadian Wheat Board. Once the market is closed, there is no basis on which to arrive at a price for Canadian wheat, except by negotiations between the governments of Great Britain and of Canada. Bargaining between the purchasing commission in Great Britain and the Canadian Wheat Board, in order to arrive at a price basis, would be difficult, if not impracticable. Neither body would have jurisdiction to take into account such matters as the importance of maintaining the financial strength of both countries; the desirable ratio of exchange between the Canadian dollar and the British pound, which ratio is inevitably affected by wheat purchase, and the level at which they are made; the possible political importance of buying up such Black Sea supplies as may be offered; and the problem of assuring food supplies to neutral countries.

* * *

Remove Daily Limit

One alternative suggested is to remove the daily limit on fluctuations on the Winnipeg grain exchange until the market reaches some predetermined level, possibly $1 per bushel, in order that an actual trading range may be arrived at as soon as possible.

Another point to be considered is that fixing prices for such feed grains as oats and barley, consumption of which is mainly domestic, is difficult if not impossible, without disturbing the relations between those farmers who raise such grains for sale and those who buy them for feeding purposes. On the other hand, the volume of trading in such grains is hardly sufficient to maintain the machinery of the market, in case trading in wheat should be suspended.

* * *

Farmers Assume Cost

A further factor mentioned in favor of keeping the market open is that farmers are willing to assume the cost of carrying considerable quantities of wheat in the expectation of higher prices later on. With a closed market they would be inclined to rush deliveries, and to secure payment in full for their crops at once.

The briefest consideration of the wheat problem of wheat prices and marketing shows that it is impossible for the Government to assume responsibility for the price to be paid to farmers without involving the whole question as to the extent to which it is desirable for the Government to assume control of the whole economic fabric of the Dominion.

Canadian Newsprint Mills Lay Down Wartime Policy

From Our Own Correspondent

MONTREAL. — Canadian newsprint manufacturers have agreed among themselves to avoid any attempt to profiteer and, at the same time, to bring about orderly marketing, thus assuring a maintenance of supply at a reasonable price, according to a statement issued by Charles Vining, president of the Newsprint Association of Canada.

These views are set forth in a statement issued by the Association, which says:

"Having in mind the extreme conditions of newsprint supply and demand which developed during the last world war, Canadian newsprint manufacturers have asked that this statement be issued to express their attitude in the situation which now exists.

Realize Their Duty

"Canadian newsprint manufacturers today realize their duty and responsibility in supplying a commodity of vital wartime importance in the dissemination of news and public information and they wish to give assurance that this realization will guide their conduct. They pledge themselves to assist, by any means within their power, the war effort of the nation.

"The Canadian newsprint manufacturers will meet the wishes of their Government by avoiding any attempt to profiteer and will make every possible effort to maintain stabilized conditions of continuous supply and to discourage methods of buying and selling which might cause a disorderly market.

Want Orderly Marketing

"With these purposes in mind, the Canadian manufacturers strongly urge their customers to take their shipments as far as possible in equal monthly quantities, avoiding unnecessary accumulation of stocks and spot purchases which inevitably would tend to bid prices up and cause disorder.

"If normal contract methods of buying are followed, the Canadian mills believe they are in position to assure continuous adequate supply to all custom

Week in Mining

Mine Shares Skyrocket With Base Metals in Van

Declaration of War Signal for General Advance Including Golds — Metal Prices Rise Sharply — Gold Goes Higher

An almost unprecedented rise took place in shares of Canadian base metal producers this week, following the declaration of war. Shares of gold producers joined in the upward swing when it was learned that, due to the decline in the Canadian dollar at New York, the Canadian price of gold was up to approximately $38.

Producers of base metal in the United States refused to make quotations in the first part of the week, but after some time a price of 12½ cents a pound was posted for United States domestic copper, a boost of 1½ cents a pound, or the limit allowed in one day's trading. Zinc was quoted at 5.75 cents at east St. Louis, a gain of ¾ of a cent a pound and lead was also higher, moving up ¼ of a cent to 5.25 cents a pound.

* * *

Higher Gold Foreseen

Increase in the price of gold due to the war comes as no surprise to readers of The Financial Post. In the isue of May 6, it was stated: "Canada is not on a gold standard and higher prices might easily be realized for gold if this country should become involved in a war . . . a depreciated dollar could easily result, particularly if the United States remained neutral and continued to pay $35 for gold in American currency." At that time it was pointed out that mines making but a small margin of profit had the most to win or lose from any change in the Canadian price of gold.

The rise in base metal stocks was not of the hit-and-miss variety. Stocks such as Sherritt Gordon, Aldermac and Normetal which have been at close to the breakeven point on previous base metal prices were the ones to show large gains. Noranda, which follows a policy of stabilizing profits, will likely decrease copper output with higher metal prices; its rise was only moderate. Consolidated Mining and Smelting, which has considerable excess capacity, marked up an important gain.

* * *

Situation in 1914

The situation of Canada's mining industry in the last war was very different to the present. The Standard Stock Exchange in Toronto was closed on the outbreak of war in 1914, but reopened before the end of the month. On July 29, before the outbreak of hostilities, old shares of Dome Mines were selling at $8.75 bid and $9 asked, while the youngster, McIntyre Porcupine Mines, was at the modest level of 32½ cents bid and 33½ cents asked, with a rumor afoot that Nipissing Mines was about to take over the company on the basis of 60 cents a share.

On reopening of trading, Dome shares were down to $6.50 and McIntyre shares were 25 cents. Trading on the stock exchange fell off shortly after reopening, with only 10,000 shares changing hands on the Standard Exchange one day early in September. That is one thing that won't likely be repeated on the Toronto Stock Exchange and serves to show how far the Canadian mining industry has come since the beginning of the last war.

* * *

Some Mines Closed

At the outbreak of the last war the market situation of some metals was depressed. Granby Consolidated was forced to close down its Phoenix property due to the low price of copper and International Nickel closed down all its mines except one and operations at that were on a very restricted basis. The supply of nickel above ground was given at two years' requirements at the then rate of consumption.

Closing of copper smelters in British Columbia was regarded as only temporary until England's demand should replace the German. Of course, it was not long before the price of copper was to soar due to a war-stimulated demand. Canada tried to increase her production of gold to offset lower production of base metals at the outset of war, but output of gold was little changed at the end of the war.

* * *

Services Offered

The mining industry has already made known its willingness to assist the country now that war has broken out. The Canadian Institute of Mining and Metallurgy, assembled at Calgary, wired the Prime Minister of Canada urging that data already delivered to the Department of National Defense by the Canadian Institute of Mining and Metallurgy, The Engineering Institute of Canada and The Canadian Institute of Chemistry be immediately analyzed, organized and indexed by competent specialists. Thus the men best qualified to render engineering or other technological service in the event of war could be explicitly designated and made available for immediate service when required. Military men have been unusually successful in Canadian mining, and mining men may now prove themselves particularly suited to Canada's wartime needs.

Pledges Jobs After Conflict

Hudson Bay Mining Head Announces War Policy

From Our Own Correspondent

FLIN FLON, Man. — Employees who enter the Canadian or British service or the service of their allies will be given back their places on their honorable discharge from those armies, R. H. Channing, president of Hudson Bay Mining and Smelting Co., announced.

Difference in conditions at the close of the war, both nationally and in the affairs of the company, is fully recognized. But Mr. Channing's affirmation is definitely on record and has been publicly announced.

At least 600 miners and other residents of this mining town in the shadow of the Arctic, many of them veterans of the last war, marched through the streets a few hours after war was declared by Britain.

Producing $13.3 millions in 1938 of zinc, copper, lead cadmium and selenium, the Hudson Bay Mine will be one of the greatest Empire sources of fundamental war materials. Many here pointed out that although a regiment was to be formed, workers in mine and plant would often be making a greater contribution to the Empire effort by staying at their regular jobs than by joining the militia.

May Peg Price

Probability that the Government would take this into consideration, and keep some base metal miners at work rather than accept them in the army, was suggested.

It is expected here, in view of the statement of Minister of Labor Rogers that price fixing of essential commodities was under consideration, that base metal prices will be pegged at moderate levels. During the last war copper climbed to around 30 cents. It is thought likely that Hudson Bay will increase its output when additional equipment can be secured.

Utmost precautions are being taken to protect the Hudson Bay plant from possible sabotage. A high steel fence surrounding the entire plant has just been completed. Armed guards now stand at all gates.

Base Metals Prices Higher As War Result

Depreciated Dollar Raises Gold Prices — Mine Costs Higher

POSITION GOOD

An extended war will have certain definite implications for the Canadian mining industry. Canada's mines serve the world market and international events are bound to affect the industry. Notable among effects which the struggle just starting should have on mining are the following:

1. A general increase in the prices of base metals due to demands of highly mechanized warfare.

2. An increased price for gold, on the assumption the Canadian dollar continues at a discount in New York and the United States continues to pay $35 an ounce for gold. The price of gold has already mounted as high as $38 an ounce due to depreciation of the Canadian dollar.

3. A corresponding gain to that of gold mines should be realized by base metal mines through depreciation of the Canadian dollar. This should give Canadian producers an additional profit over and above rise of base metals in the world generally.

4. Costs of mines will increase if war demands for supplies tax the resources of industry. Gold mines are likely to feel such an increase more severely than base metal mines whose products usually enjoy an almost perpendicular increase in price during wartime.

Rapid Rise Foreseen

The statistical position of the base metal industry is such that any war-stimulated demand may have the effect of pushing up prices rapidly if there is no rationing. At the opening of hostilities, copper supplies in England were little over a month's peacetime requirements, Germany having taken a large part of the available English supply prior to the placing of an embargo on the shipment of copper.

Germany may now be out of the market for copper directly but may become an important purchaser through neutral countries such as Italy. Lead and zinc enjoy the same wartime demand as copper. In the first year of the last war Canadian gold producers were seriously considering an alternative for zinc in cyanidation, so high had the price of that metal soared.

Depreciation Effect

The possibilities of high prices for metal producers through depreciation of the Canadian dollar appear greater than in the last war. Then, the dollar was allowed to undergo only a slight depreciation in relation to the United States dollar, being pegged along with sterling in terms of gold. The United Kingdom supported the currency through reserves of securities held by its nationals and indirectly through credits obtained from the United States for supplies.

In this war legislation will prevent the United Kingdom from securing credit from the United States and depreciation of the pound and dollar may eventually be extensive. The United Kingdom may find it desirable to support the Canadian dollar, however, so the Canadian Government can assist by borrowing in New York. In this case the Canadian dollar might not be far below its present level and the effect on metal producers would accordingly be limited.

Costs Likely to Rise

Increased prices will not be all profit for the Canadian producer and in some cases far from it. Costs are bound to increase, and in the case of gold mines most of the authorities seem to believe that the increase in costs will likely be greater than the increase in the price for gold. It is recalled that high supply and labor costs in the last war caused both Dome and Hollinger to cease operations for short periods. The first year and a half of the war was not fraught with too many difficulties but so many men had gone abroad and wages were so high that it was considered best to close down.

The present war is not likely to see a heavy initial enlistment like the last war and the labor problem consequently may not become acute nearly as rapidly. The possibility presents itself, however, that in view of serious wartime needs, gold mining might be looked at as non-essential, and labor might be diverted into other channels such as munitions manufacture.

At Granby Consolidated in the last war costs rose from $3.14 in 1914 to $3.76 the following year, to $3.91 in 1916 and $6.74 a ton in 1917. The rise in the price of copper, the company's chief product, more than offset the increased cost.

Some Charges Fixed

In mining certain costs are relatively fixed while others are susceptible to great variation. Preproduction expense charged against operations does not vary as the general level of prices changes, for instance. Depreciation, which is an important expense with all large mining companies, is fairly well fixed and the annual charge is not likely to change greatly unless equipment is either fully written off or is replaced with other equipment at a different replacement cost.

Some supply costs are relatively stable also. Freight and hydro-electric power are two of the big costs of mining and they are not very susceptible to change. Freight charges are not as important with gold mines as with base metal mines but electric power is just as important as to the base metal producer. Explosives are nearly twice as important a cost to the gold mine as to the base metal mine and this is a cost which is particularly susceptible to change in wartime.

Other important costs are fittings, iron parts and bars, lumber and timber, machinery, chemicals and miscellaneous supplies. Each one of these is likely to experience a considerable price rise if war demand is to tax the productive resources of industry.

At the beginning of the last war Canada was not prepared to deliver the large supplies of base metals supplied until well into the struggle. That situation is changed today and Canadian producers should get high metal prices right from the first; not after valuable time has been lost installing productive equipment.

It remains to be seen whether our mines will follow a policy of treating their better grade of ore in reserve during a high price period to raise revenues, or rather will treat a lower average grade of ore in order to increase the length of the mine life. Practice of gold mines in the last few years suggests the latter policy may be followed.

Gold mines have usually mined everything that shows a profit on the theory that it will not pay to come back and mine lower grade material at a later date. Noranda follows the policy of treating ore lower in copper content and higher in gold during periods of high copper prices, raising copper grade only when the price of copper falls. This has the effect of stabilizing profits. There is, however, no case exactly analogous to Noranda and each management will make its own decision. In any case, the increase in profits of base metals will likely be large with a continued war.

If the last war is any criterion, consumption of nickel should show a marked expansion but the company will likely be able to expand production sufficiently to keep the price stabilized at around the present level of 35 cents a pound. No price change by the management is anticipated as any increase over 35 cents might disrupt some of the industrial uses for the metal which have been so painstakingly built up.

Canada's last year production of metals likely to enjoy a stimulated demand over an extended period of warfare are as follows:

	Lbs.	Value $
Copper	586,020,402	58,026,972
Lead	416,913,257	14,008,459
Nickel	210,673,270	53,949,311
Zinc	381,506,588	11,723,697

Alberta Pacific's Profit Decreases

Investment Income Helps Offset Drop in Oil, Royalty Income

Although income from investments increased from $1,510 to $30,163 during the period, net profit of Alberta Pacific Consolidated Oils for the year ended Dec. 31, 1938, showed a decline at $9,882 compared with $13,700 the previous year. The decline was chiefly attributable to a drop in oil revenue from $38,996 to $160 and lower royalty income at $18,405 against $37,167 in 1937.

Since the end of 1938 the company has been able to complete a contract for sale of all or a large part of the output from the Cut Bank field for a term of years. It was not found possible to market any oil from this field in 1938.

Numerous Turner Valley drilling proposals were investigated in 1938, but as interests reserved to others were considered too high it was decided to investigate outside areas. Arrangements were consequently made to drill the A. P. Con.-Sheppard Creek No. 1 well in the area lying 13 miles southwest of the southerly producing limit of the Turner Valley and a block of 1,700 acres has been acquired or optioned. Included in the site is a well which encountered good oil showings at moderate depth, but was abandoned due to mechanical difficulties. A fifth interest has also been taken in 2,560 acres on the Steveville structure and in the drilling of a well there.

Revenue and Expenditure Account
Years Ended Dec. 31

Revenue:	1938 $	1937 $
Oils & gas sales	160	38,996
Power sales	23	270
Royalties	18,405	37,167
Bank interest	247	254
Rent & services	1,200	1,395
Sales of invests.	2,613	1,270
Income from invests.	30,163	1,510
Sale of equipment	.....	1,417
	52,811	82,279
Expenditure:		
Sals. & dir. fees	7,987	8,675
Auditing	500	500
Lease rentals, etc.	8,510	10,261
Oper. expenses	5,111	10,266
Off. rent & exps.	2,633	2,539
Oper., gold mining	.....	403
Taxes	1,455	620
Insurance	165	193
Legal expense	469	194
Geol. & survey exps.	550	.....
Depreciation	9,689	13,961
Depletion	4,647	19,108
Sundry expense	1,051	1,859
Loss on equipment	162	.....
Profit for year	9,882	13,700
	52,811	82,279

Working Capital
As at Dec. 31

	1938 $	1937 $
Current assets	182,344	212,106
Current liabilities	8,520	14,043
Working capital	173,824	198,063

Appoint General Manager For Timken Bearing Co.

Associated with Canadian activities of the company for 20 years, Charles E. Webster has been appointed general manager of Timken Roller Bearing Co. Ltd., Toronto, Ont. His new duties, while not new to him, will put him in much closer touch with all Canadian industry, it is stated.

CHARLES E. WEBSTER

The new appointment of a Canadian general manager is expected to be of benefit to the Canadian trade, now allowing all major activities to be centred in Toronto. Mr. Webster's previous work embraced sales of Timken products throughout and he starts his new position with a thorough knowledge of the requirements of the Canadian trade.

Montreal Stock Trading Greater During August

From Our Own Correspondent

MONTREAL. — Trading on the Montreal Stock Exchange and the Montreal Curb Market increased sharply during August. A total of 446,800 industrial shares changed hands, as against 387,098 shares in July and 553,423 shares in August for last year.

Week in Oils

Drilling Wildcat Wells May be Hit by the War

But Turner Valley Development Should Proceed as Intensively as at Present— Guards Watch Pipe Line and Calgary Refineries

From Our Own Correspondent

CALGARY.—How will the war affect the Alberta oil industry? Generally, it is believed that Turner Valley development will be carried on as intensively as at present, but less money will be available for wildcat operations.

Turner Valley is the only crude field of major importance in Canada. If drilling operations were halted for any considerable length of time, production would decline as existing wells became exhausted and, once again, western Canada would be dependent upon the United States for its oil supplies. As is the case in any oil field in the world, continual drilling of new wells is necessary to maintain, if not increase, production.

Turner Valley Favored

Capital may fight shy of risky investments in wartime and, of course, drilling of wildcat wells is always a very speculative proceeding from a financial point of view. Because of the fact there was no real oil field in Alberta when war broke out in August, 1914, ambitious drilling programmes were abandoned and hundreds of companies formed in Calgary's first oil boom quickly became inactive. The only justification for the boom was production of a few barrels of oil daily from an upper sand at the Dingman discovery well in Turner Valley.

There is little financial risk, however, in drilling up the proved Turner Valley field of today. Since the discovery of crude oil in the Turner Valley limestone, in large quantity, by the Turner Valley Royalties well in 1936, only two dry holes have been drilled in the field and approximately 85 wells are profitable crude producers. This is a record which valley oil operators claim cannot be equalled in any field in the world.

It is a well-known fact that oil is one of the most important of raw materials in wartime. It may well be that federal and provincial government funds may be made available for continued development of Turner Valley and for a continued search for new oil fields in this province. It is inconceivable to petroleum engineers, geologists and petroleum technical men, generally, that a strip of land about a mile and a half wide and about 20 miles long constitutes the only major crude field in Alberta or Canada, for that matter.

* * *

Guard Pipe Line

Steps are being taken to protect Alberta's oil industry from sabotage. The pipe-line system from Turner Valley to Calgary is being patrolled and watchmen are stationed at both the Calgary and valley ends. Guards are also stationed at the Imperial and British American refineries in Calgary and no one is admitted to either plant without an identification card. Well under way is the new Imperial refinery which will cost approximately $1,750,000 upon completion, perhaps before winter. The British American company is operating its new $1,250,000 Calgary refinery at capacity.

* * *

Lloydminster Strike?

What may prove to be an important oil strike is reported from the Lloydminster field, adjoining the Saskatchewan border.

The Riley-Shaw-Franco 2 well, drilled by a syndicate headed by Russel Shaw, of Lloydminster, in which Franco Oils, Ltd. is interested, struck a heavy gravity crude oil at 1,771 ft. and tests are now in progress to determine the extent of the strike. According to Mr. Shaw, the well may produce as much as 300 barrels of oil daily. No well in Alberta, outside Turner Valley, produces even 100 barrels of oil daily. The oil, however, is only about 15 degrees gravity compared with 42 degrees gravity, on the average, of Turner Valley crude. The provincial government is particularly interested in the Lloydminster strike as the field may prove an important source of road construction material. The well is located in section 25 of township 49, range 1. Riley-Shaw-Franco 1, drilled in the same township, only encountered a crude oil showing but there was considerable gas. There is little gas at the well just completed and it will have to be operated on pump.

* * *

Pipe Line Still Studied

Walter Campbell, Anglo-Canadian director, who was a member of the oil delegation which visited England recently to discuss the Alberta oil situation with British interests, has announced investigation into the feasibility of constructing a pipe line from Turner Valley to the head of the Great Lakes to continue despite the outbreak of war. Dr. Charles Camsell, deputy minister of the federal department of mines and resources, has been in Calgary for several weeks in connection with the investigation. When it is completed a report will be submitted to the federal and provincial governments.

* * *

Production Record

Alberta produced 877,005 barrels of oil in July, a new record for any one month in the oil history of the province, according to an announcement just made by the Alberta department of lands and mines. The previous record month was September, 1938, when the province produced 867,454 barrels as Turner Valley crude wells were opened practically to capacity to meet heavy demand for oil arising from the harvesting of a large grain crop. The July, 1939 total compares with 798,170 barrels in June; 690,066 barrels in May; 678,243 barrels in July, 1938; and 226,000 barrels in July, 1937.

Production for the first seven months of 1939 was 4,131,274 barrels. It was 623,661 barrels in excess of the yield during the corresponding period in 1938 and 2,943,531 barrels in excess of the yield in the first seven months of 1937.

The July, 1939, production was made up of 844,573 barrels of light crude from the Turner Valley limestone; 4,857 barrels of naphtha from valley limestone wells; 24,148 barrels of natural gasoline from absorption plants in the valley; 686 barrels of light crude from horizons above the lime in Turner Valley; 1,120 barrels of light crude from Red Coulee; 1,723 barrels of heavy crude from Wainwright; and 98 barrels of light crude from the Moose well on the Moose Dome, west of Calgary.

* * *

Royalite Wonder Well

The shallowest large producer ever completed in Turner Valley was Royalite 4, the "wonder well" of the 'twenties. This well, the first to penetrate the limestone, struck a large wet gas flow and established the field as a naphtha producer. The well produced 911,313 barrels of naphtha in its lifetime of 10 years, valued at $2.7 millions. In addition it produced a gas revenue, the extent of which is not known.

Royalite 4 obtained its huge wet gas production from the shallow depth of 3,740 feet, 290 feet in the limestone. Now Turner Valley crude wells are drilled to depths of 8,000 feet and more. The lime is usually penetrated at least 450 feet.

The peak production, at capacity of Royalite 4 was 600 barrels of naphtha daily. Home-Millarville, the largest crude well in the field today, has an allowable yield under proration of 682 barrels daily, but if operated to capacity it could probably yield more than 2,000 barrels daily.

Mining Concentrates

Aunor Gold Mines has received directors' authorization for construction of a mill with an initial capacity of 300 tons daily. The mill site is now being cleared and orders are being placed for the necessary equipment.

* * *

Bounty Consolidated Mines completed an agreement on Aug. 15, by which Sidney Druckman agreed to purchase 54,000 shares for $2,700 and was granted an option on 421,000 shares as follows: 196,000 shares at 5 cents a share; 150,000 shares at 7 cents a share; and balance at 9 cents a share payable 46,000 shares by Sept. 15, and 50,000 shares monthly thereafter. A further option is granted on 525,000 shares at 9 to 40 cents a share payable 50,000 shares when the first option is exercised and 75,000 shares monthly thereafter. Authorized capital of the company is 4 million shares of which 1,750,005 have been issued.

* * *

Centrecour Gold Mines optioned 833,276 shares to Henry Drummond on Aug. 3, as follows: 200,000 shares at 5 cents a share; 120,812 shares at 10 cents a share with balance at 15 to 25 cents a share, payable $5,000 by Oct. 3, $2,000 monthly thereafter for four months, $2,500 monthly thereafter for a further four months and then $5,000 monthly for a further 10 months, with balance within the next three months. Authorized capital of the company is 3 million shares of which 1,668,774 have been issued.

* * *

Dawson-White Gold Mines held a meeting of shareholders on Friday of last week at which an entire new board of directors was elected. The new directors are as follows: B. N. Hill, Ben Luxembourg, G. R. MacLaren, F. C. Reid and S. E. Sterling. Following election of directors, S. E. Sterling was appointed president. Present plans call for formation of a new company with an authorized capital of 3 million shares, shareholders to receive one new share for three old. The new directors are to continue negotiations with creditors and any shareholders who express their willingness to aid in financing. At present there is a mortgage and other debts which total around $18,000.

* * *

Hard Rock Gold Mines is expected to have its new roaster in operation about the middle of September, according to President T. H. Rea.

* * *

Kelrowe Gold Mines expects to have installation of its mining plant completed by the middle of September and sinking under power will then be started. Objective of the shaft will be 325 ft., with levels to be established at 175 and 300 ft. depth.

* * *

Kiena Gold Mines intersected an ore shoot 841 ft. in its new long crosscut showing a true width of 15 ft. with car samples along a length of 40 ft. returning an average of $15.40 per ton. Channel sampling over a length of 25 ft. on the west wall gave an average value of $4.69 per ton. Results from sampling the east wall and the backs are not yet available. The crosscut is being continued and work on the above and other showings is not planned until the zone indicated by diamond drilling from surface has been reached.

* * *

Kootenay Belle Gold Mines is reported to have cut its main vein on No. 8 level, at its property in the Sheep Creek area of British Columbia. Good mineralization is stated to be showing across a width of 5 ft. with the new intersection adding 250 ft. to the vertical depth of the vein. Ore is now being drawn from the No. 7 level, according to the report, and shaft sinking to open two further levels is under way.

* * *

New True Fissure Mining has granted an extension of 90 days on the option agreement held by Clair Management Ltd. According to the revised agreement, 100,000 shares are to be taken up on or before Nov. 1, 1939, at 50 cents a share and 100,000 shares are to be taken up on or before Jan. 1, 1940, at 60 cents per share.

* * *

Reward Mining Co. shares have been removed from trading on the Montreal Curb Market.

* * *

Spud Valley Gold Mines has had its shares registered for sale in the United States. The company owns a producing gold property in the Zeballos area of British Columbia which is equipped with a 50-ton mill. A. B. Trites, one of the original owners of the Premier mine, sold Spud Valley earlier in 1939 to Seattle interests for a reported $800,000 of which $450,000 was in cash.

* * *

Savard Mines completed a financing deal on July 13, by which Crawford Wright & Co. agreed to purchase 50,000 shares at 5 cents a share and was granted an option on 2 million shares as follows: blocks of 100,000 shares each at 5, 6, 7 and 8 cents a share, payable at least $5,000 monthly. Authorized capital is 4 million shares with 1,600,000 issued.

* * *

Smelter Gold Mines is stated to have completed financing for a programme of diamond drilling its Rowan Lake property and equipment capable of drilling to 1,500 ft. depth will be used. The ore zone is stated to have been exposed for a length of 100 ft. and a width of 27 ft. by several pits. On the east end values from $1.40 to $7 were secured in five of the pits. Two pits to the west yielded $40.25 and $44.80 per ton and in the next trench west, three pits yielded $36.75, $13.30 and $85.40 a ton. Further west four pits yielded $11.20, $12.60, $1.40 and $21.70 per ton. The north wall of the deposit has not been uncovered, it is stated.

* * *

Teck-Hughes Gold Mines has declared an extra dividend of 3 cents per share payable with the regular quarterly dividend of 10 cents per share on Oct. 2, 1939, to shareholders of record Sept. 8.

* * *

Upper Canada Mines is expected to have its new 150-ton mill completed and in operation around the beginning of October. The mill building has been erected and roofed and foundations for the mill are now being put in. Crushing equipment to be installed will have a capacity of 250 tons every eight hours.

Mining Enquiries

Cassels Duval

From information received it appears to me that Cassels Duval has a good chance of developing into a profitable producing mine. So far I have found it impossible, however, to purchase the company's shares. How should I go about this?

Cassels Duval Mine is practically a private undertaking with finances for operations being provided by Mic-Mac Exploration, a subsidiary of United States Smelting and Refining Co. This accounts for your difficulty in buying shares. The only block of stock whose ownership is known to The Financial Post outside of Mic-Mac's is 325,000 shares held by Rubec Mines which sold 200 acres to the company. If you desire to participate in Cassels Duval you will have to buy shares of United States Smelting and Refining or Rubec Mines unless you can find some broker who knows of some privately held stock which is available.

Results at the Cassels Duval property are stated to be interesting although underground work is not believed to have given as good results as surface drilling. At the 285-ft. level, a length of about 160 ft. of ore is stated to have been opened up which may run about $6 to the ton across 20 ft. Farther to the east, another ore body has been encountered running $5 to the ton. Drifting on the 485-ft. level has given generally lower values than on the 285-ft. level. Drifting into the optioned Norgold property is now being started with surface drilling indicating an ore shoot.

Negus Mines

I am a shareholder of Negus Mines and would appreciate whatever information you can give me as to results being obtained at this mine.

Production at the property of Negus Mines in the Yellowknife area is running approximately $50,000 monthly with a substantial operating profit being realized. As 50 tons of ore is being fed to the mill each day, it is evident that recovery is averaging perhaps a little over $33 a ton. For the first six months of operation ended July 31, 1939, production has totalled close to $295,000.

It is expected that results from now on will reflect a reduction in costs as the expenses incidental to bringing a new property into production are past. So far, ore for milling has all been drawn from the 100-ft. level but this situation will likely soon be changed as the 200 and 300-ft. levels are now in process of being opened up. At the 200-ft. level a vein section has been cut showing a width of 12.5 ft. averaging 1.65 oz. gold a ton. On the level below two of the three parallel veins have been cut and drifting is in progress on one. A length of 115 ft. has been opened up in this last vein averaging 1.27 oz. across 26 inches. No immediate plans are being considered for expanding mill capacity, it is understood, but this point will undoubtedly come up when development has been carried far enough.

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By W. BRUCE MacKINNON
Staff Writer, The Financial Post

Sluggish, crisis-ridden mark provide a background that o serves to highlight decisive min developments. Under such con tions 1938 provided outstand major developments — MacLe Cockshutt and Hard Rock, t Waite Amulet, Preston East Do and East Malartic. Against a si lar background, 1939 is providin record of active ore developm which may result in compara achievements of significance.

The closing of properties for l of funds, passing of option ca and the failure of stock promoti can easily blind investors to steady attacks that are being m on the stubborn rocks of the co country. The major difference tween the work done in 1939 a that of more optimistic period that today's work is being done large companies instead of small areas and in many cases takes form of costly underground rat than low cost surface work.

Where are some of these eve likely to happen? There are many possibilities in the ent Canadian mining field that pra cal appraisal can most feasibly made of Ontario alone.

Development Programmes

Right now development p grammes are either going forw or are being prepared which m extend the Kirkland Lake and P cupine camps in three directio In these two camps there are least 10 mining companies carry on work which may alter the o look for entire districts, let alo for the companies directly conce ed. In the majority of cases present activity promises defin effect on the future of the min companies involved and warra scrutiny of investment opportu ties.

In Kirkland Lake, Toburn G Mines has the Federal Kirkland a Kirkland Combined properties u der its wing. Already in charge Continental Kirkland, Toburn n has three properties to the no and northeast under developme whose combined area totals over claims. A long drive is being p out from Toburn's 1,100-ft. level a preliminary test of the Fede Kirkland property. Should this subsequent efforts meet with su cess, Toburn will benefit to the e tent of 70% of the profits from p duction, and the ore chances of numerous small properties lying this edge of the Kirkland Lake zo will hold better possibilities.

The Lake Shore Drive

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Old Areas See New Attack

Prospecting on Decline But Big Companies Are Active

By W. BRUCE MacKINNON
Staff Writer, The Financial Post

Sluggish, crisis-ridden markets provide a background that often serves to highlight decisive mining developments. Under such conditions 1938 provided outstanding major developments — MacLeod-Cockshutt and Hard Rock, then Waite Amulet, Preston East Dome and East Malartic. Against a similar background, 1939 is providing a record of active ore development which may result in comparable achievements of significance.

The closing of properties for lack of funds, passing of option dates and the failure of stock promotions can easily blind investors to the steady attacks that are being made on the stubborn rocks of the north country. The major difference between the work done in 1939 and that of more optimistic periods is that today's work is being done by large companies instead of small. It is taking place in fairly well-proved areas and in many cases takes the form of costly underground rather than low cost surface work.

Where are some of these events likely to happen? There are so many possibilities in the entire Canadian mining field that practical appraisal can most feasibly be made of Ontario alone.

Development Programmes

Right now development programmes are either going forward or are being prepared which may extend the Kirkland Lake and Porcupine camps in three directions. In these two camps there are at least 10 mining companies carrying on work which may alter the outlook for entire districts, let alone for the companies directly concerned. In the majority of cases the present activity promises definite effect on the future of the mining companies involved and warrants scrutiny of investment opportunities.

In Kirkland Lake, Toburn Gold Mines has the Federal Kirkland and Kirkland Combined properties under its wing. Already in charge of Continental Kirkland, Toburn now has three properties to the north and northeast under development, whose combined area totals over 40 claims. A long drive is being put out from Toburn's 1,100-ft. level as a preliminary test of the Federal Kirkland property. Should this or subsequent efforts meet with success, Toburn will benefit to the extent of 70% of the profits from production, and the ore chances of the numerous small properties lying at this edge of the Kirkland Lake zone will hold better possibilities.

The Lake Shore Drive

Almost due west of the Toburn properties, Lake Shore has carried a drive north from its 3,000-ft. horizon into ground owned by Kirkland Basin Gold Mines. Lake Shore has encountered some favorable zones in this work and is now settling down to an intensive examination of its finds. If Lake Shore's optimism is rewarded at Kirkland Basin, we may see a revival of prospecting interest in the north and west section of the district.

Lately, the success of Macassa and Kirkland Lake to the southwest of Kirkland Lake's "Big Three" has led some to assume that the main break turns toward the south, but there is always the possibility of a parallel structure forking off to the north.

That the ground lying south of the main producing belt is regarded as having possibilities (enough, at least, to warrant outlay for exploration) is attested by the recent formation of Amalgamated Kirkland Mines, pieced together from Canadian Kirkland, Kirkland Hunton and three other small properties. The new company has a block of 560 acres touching the south boundaries of Teck-Hughes, Kirkland Lake and Macassa, and is being financed by W. J. McDonough of Toronto and his associates. Although actual operations have not yet begun, a $32,000 down payment has been made on the financing agreement.

Bigger Concerns

It is interesting to note that the battle of Kirkland Lake is still going on. While the smaller companies, financed by public subscription, have retired in temporary discouragement, the more prosperous mining companies are carrying on the constant effort to open up new ore. If and when the big outfits succeed, the way will be open for a host of smaller companies to take advantage of the situation.

The story at Kirkland Lake is duplicated at Porcupine. At the northeast end of the camp, Pamour Porcupine Mines is going through a critical phase of its development. With its shaft down nearly 2,000 ft., ore has been drawn mainly from above the 400-ft. level, while the lower levels are being subjected to an intensive two-year programme of development. To the end of 1938, Pamour had milled 929,548 tons of ore and had reserves of 1,748,666 tons above the 600-ft. level.

If the company continues to develop ore at this rate and does not increase its present milling rate of approximately 600,000 tons annually, the new depth developments would add about 14 years' ore reserves. Favorable or not, completion of the present programme will go far to establishing the status of the mine for some time to come.

Hallnor and Hoyle

Two other properties in the vicinity are carrying operations to depth. Hallnor, already earning more than twice as much as Pamour, will have deepened its shaft to 1,560 ft. by the end of September and will then be in a position to test the continuation of its high-grade ore bodies. Adjoining Pamour on the north and east, Hoyle Gold Mines, although not producing, has sunk its shaft 2,000 ft. and is making exploration advances on the 400, 600, 800, 1,600 and 1,800-ft. levels at the rate of 1,200 ft. a month.

Broulan Porcupine, to the south of Pamour, is developing its property to a depth of 500 ft., while North Whitney, to the north of Hallnor, is preparing to carry out lateral exploration on its 250-ft. level. In all there are five properties in this region all of which are actively engaged in determining the ore picture. From the miner's point of view the current campaigns will do much to disclose how far and how strongly the major Porcupine ore bodies persist in this direction.

At the opposite end of the main Porcupine camp, Aunor Gold Mines plans to enter the producing ranks with a 300-ton mill. Developed to a depth of 1,000 ft., the Aunor property closes the gap between Buffalo Ankerite and Delnite. With the exception of Aunor, development work in this section is devoted to depth exploration of existing ore structures.

Potentially Important

Paymaster Consolidated has carried an exploration drive 2,000 ft. west on its 2,575-ft. level, at which point a diamond drilling station has been set up and the drive continued south. This work is being carried on at a depth 1,000 ft. below the main source of Paymaster mill feed in the past year, and may have a very pronounced influence on the future status of this producer. The company is operating at a small margin of profit.

Buffalo Ankerite is carrying out a programme which will double the present effective depth of the mine. Sinking of the shaft and the winze had nearly reached the objectives of 2,390 and 2,040 ft. respectively, at the end of July. Three levels had already been opened up off the No. 5 shaft at that date with preliminary workings in ore of mine grade.

Buffalo Ankerite operations in recent months have been subject to the pressure on profits of heavy development charges and declining grade. Owing to its small capitalization and big tonnage, earnings per share are subject to fluctuation. The company is milling annually about half a ton of ore for each share of stock outstanding, with the result that a change of $1 per ton in net profit causes a corresponding change of about 50 cents in earnings per share.

The Gillies Drive

Not to be overlooked in the face of the activity in the southwest is Hollinger's drive to extend the Porcupine zone on the north and west. Hollinger has taken over the Gillies Lake property and has carried a long crosscut to within 70 ft. of the Gillies Lake boundary on the 1,550-ft. horizon. Once a small-scale producer, Gillies Lake has baffled previous efforts to extract profitable ore from its favorable geological formations. The Hollinger attempt promises to be one of the most comprehensive yet undertaken in this stubborn territory.

Although it has already occasioned 1939 market movement, Coniaurum is continuing to develop its new north zone and has a good chance of attracting investor interest. Earlier in the year the discovery of the north ore lifted quotations on this stock from its April low of $1.26 to $2.34 in July.

In addition to the work being carried on by the established Porcupine properties, territory beyond the proved zone is being explored. In the south, active work is going forward at Faymar, Jodelo and Galore, while farther west Orpit and Toburn's Minesta properties are working.

The Hasaga Possibility

Out in northwestern Ontario, J. E. Hammell and his companies are carrying on work in three separate areas—Red Lake, Uchi Lake and Pickle Lake. At Hasaga, the former Red Lake Gold Shore property adjoining Howey, an entirely new ore body has been found at the 500-ft. horizon that is leading to the talk of resumed milling, possibly at a rate of 500 tons or higher.

In the Uchi district, exploration is being carried on at the 175-ft. level of the Starratt-Olsen claims. North of Uchi Gold Mines, Hanalda and Jalda are sinking three-compartment shafts. Both properties have yielded favorable surface showings. Financing of these two interesting properties is being carried on jointly by Mr. Hammell, Jacola Mines and Harker Gold Mines.

At Pickle Crow Albany River Gold Mines is awaiting the completion of power facilities early in September to resume development of its property. A drive is to be put out to connect with Pickle Crow on the 625-ft. horizon where good showings have been had on the parent property. The prospective campaign will prove of interest in correlating the numerous scattered ore showings on Albany Rivver.

The developments discussed here are for the most part being carried on by large, wealthy mining interests. It would seem reasonable to hope that at least some of the work now being carried on by the best mining brains in Canada will bring substantial ore discoveries. And substantial ore discoveries form one of the major factors in the appraisals of prudent investors.

B. C.'s Output Of Gold Rises

But Total Mineral Output in 6 Months Down Due to Base Metals

From Our Own Correspondent

VANCOUVER.—Value of British Columbia mining production so far this year has not quite maintained the pace set in 1938, according to official estimates issued by the British Columbia Government.

Lode gold, copper and coal show gains, but placer gold, silver, lead and zinc are all down, so far as totals for the first six months of 1939 are concerned.

While the biggest change reported has been the rise in value of lode gold production, this has been offset by declines in base metals. For the first six months the reduction as compared with the figures for the corresponding period of 1938 is 1.8%.

Lode gold's performance is largely due to the coming into production of the Zeballos area and the continued high yield of Bridge River, Cariboo and Sheep Creek mines. Slump in base metals is due chiefly to decline in prices, although if present levels are maintained during the coming six months the present loss may be turned into a gain.

Gold Figures Rise

For the first six months of this year 14,000 oz. of placer gold were mined, worth $404,809, compared with 15,000 oz. in the first half of 1938. Lode gold mines produced 300,181 oz. this year worth $10,555,265, compared with 267,863 oz. the previous year.

For the first half of 1939, 5,347,036 oz. of silver were produced worth $2,288,638, compared with 5,582,307 oz. the year before. In copper, this year's output was 36,561,737 pounds, valued at $3,661,292, compared with 33,182,538 pounds a year ago.

Lead production for the first half of this year amounted to 184,556,125 pounds valued at $5,582,823, compared with 202,586,009 pounds; zinc, 132,750,342 pounds worth $3,795,332, compared with 159,379,206 pounds.

Coal showed an increase this year with 690,123 tons for the half-year period compared with 637,046 tons a year ago. This year's value of production is placed at $2,993,023.

Extension Oils Toronto Listing

Two Wells Completed With Further Two Wells to be Drilled

Shares of Extension Oil Co. were called for trading on the Toronto Stock Exchange on Tuesday, Sept. 5, with ticker abbreviations EXO. The listing covers a total of 2.5 million shares of which 2 million are issued. Property held comprises leases of petroleum and natural gas rights on the northwest quarter of Sec. 17-18-2-w5 in the south section of the Turner Valley.

Extension has two producing wells, the No. 2 well recently completed setting a new record when it produced 3,107 barrels of oil under government test in a period of 24 hours; no other well completed ever produced more than 3,000 barrels under restricted flow. The nearest approach to the Extension was the Frontier well which produced 2,719 barrels through a smaller choke. The Extension well will be given a production quota shortly. The older Extension No. 1 well was completed on Jan. 3, 1939, and to the end of June produced 56,112 barrels of crude valued at $64,836. Daily allowable on July 8 was 682 barrels. The company now plans to drill two further wells as provided in the lease agreement.

Higher Dividends From B. C. Mines

Total Rises from $1.8 to $2.1 Millions for First Six Months

From Our Own Correspondent

VANCOUVER — Substantial increase in the amount of dividends paid by British Columbia mines during the first half of 1939 compared with the corresponding period a year ago is reported by the provincial department of mines.

Dividends paid this year up to and including June were $2,178,333; during the first six months of 1938, $1,842,849. Dividends declared for payment subsequent to June, 1939, total $2,861,525, making total dividends declared to date for payment this year $5,039,858.

Companies declaring and paying dividends during the first six months of this year include Bralorne, Cariboo Gold Quartz, Hedley Mascot, Island Mountain, Kootenay Belle, Pioneer, Privateer, Reno, Sheep Creek, Silbak Premier and Granby Consolidated. Subsequent to June, Consolidated Mining & Smelting Co. was added to the list.

Central Patricia Gold Mines has declared the regular quarterly dividend of 4 cents per share plus an extra of 1 cent a share, both payable Sept. 30, to shareholders of record Sept. 15.

War Halted First Gold Rush Where New Boom Gets Going

From Our Own Correspondent

VANCOUVER.—Old-timers of Tofino, fishing village on the west coast of Vancouver Island, south of Zeballos, have just been presented with Canada's latest new gold rush—into the Bear (Ursus) River and Herbert Arm area. But they don't know what to do with it. The last time they had such a stampede of prospectors—in the summer of 1914—the Great War rudely interrupted it. So now the question is, will history repeat itself, on the 25th anniversary of the last rush, and war again halt this latest excitement?

If not, history is repeating itself in another way—returning life to the jungle growth east from Clayoquot Sound, where prospectors flocked during the summer of 1914, encouraged by the success of the Ptarmigan mine. It was here that a gold town—Bear City, they called it—sprang up on the beach, less than a mile from the site of the present settlement—a town which thrived with the flow of easy money. Streets were built and buildings mushroomed, one of which naturally was a hotel, with the customary trimmings.

Business was bustling late in July, so the story goes, and the proprietor ordered an extra large supply of liquor. But when, in August, Great Britain declared war, there was an immediate exodus from the camp, customers deserting the gold and whisky in favor of the bugle. Left alone in the derelict town, the proprietor and his cook found consolation in the ample stores of imported liquid refreshments.

The Lone Straggler

Days passed and a lone straggler, a prospector, arrived at the hotel to book a room—the last man to come out from the scene of the rush. He was told about the war, but the available hospitality had a stronger fascination, so he remained as one of the three residents of the ghost town.

The pair—proprietor and straggler—soon came to an agreement; they would take turns as bar-keeper and customer, one working one day and the other the next. This went on for weeks, until the prospector got to the point where he was enjoying it all, and didn't want to share any more of the imported beverages with his host. He offered to buy the hotel. A deal was made, and the erstwhile proprietor left for parts unknown.

The new owner of the hotel stayed as long as the liquor did, then told the cook he would be back in a few days with a further supply. However, war drums or something got into his blood. He didn't reappear. After waiting for weeks the cook packed up and went off to join the colors.

Town Rots Away

For many years the ghost buildings of the town rotted in the backwoods of British Columbia. Wagons, ore buckets, machinery and miles of cable, left behind at the Ptarmigan mine and along the road to the sea, remain to this day, the English operators having left so hurriedly that there wasn't time to store them. Their plan had been to return as soon as the war was over. Few ever returned even from France, let alone to the mine.

Now, a quarter of a century later, Bear or Ursus City—a settlement of tents—is rising again on the sands of Clayoquot Sound.

Here is the jumping-off point for the boom which extends for 15 miles inland along the Big Bear and Little Ursus Rivers. At least 100 prospectors are on the scene. At least 300 claims have been staked. Some ore has already been developed in crosscutting and drifting done by Pioneer Gold of B. C. and Anglo Huronian of Toronto, which companies are working in partnership on development of a property held by Musketeer Mines, Ltd., a newly organized company. Possibilities of it developing into a high-grade, small-tonnage producer in a comparatively short time are reportedly good. A government road is being built from tidewater to permit transport machinery. A. E. Bull, president, reports the property looks "decidedly interesting."

Two shoots totalling 290 ft. of ore are developed in one adit, while a second adit is to be driven. Results from work on this level, together with indications disclosed from diamond drilling now being done below present workings, will determine if and what size of a mill is to be built. A 25-ton plant is tentatively mentioned.

Buccaneer Mines

Buccaneer Mines Ltd., a second new company with properties adjoining Musketeer, is a second possible late 1939 producer. Some 450 ft. of ore reportedly averaging $122.15 across 0.432 ft. (or $18.20 over stoping width of 3 ft.) has been developed for depth of 163 ft.

Other active companies include Herbert Arm Gold Mines, where Dr. M. F. Bancroft, eminent geologist, is directing work; Bibb Consolidated, which is exploring four groups, two of which are owned by Moyeha Gold and Ensign Gold companies; Abco Mines, which has just made a new deal and is proceeding with active development after a six months shut-down; Dentonia Mines, and reportedly Canadian Exploration Limited. At least a dozen other private prospecting parties are known to be at work.

At few miles south, on Kennedy River, Kennedy River Gold Mines is preparing to ship high-grade ore to the Tacoma smelter. Still farther south on Franklin River, four companies, Havilah Gold, Ashloo Gold Mines, Black Panther Mining Company and United Properties Limited, are active. Havilah officially reports sufficient ore already in sight for a 25-ton mill, but production is being deferred until a 100-ton plant is justified. Shipments of high-grade copper-gold ore have started from the Thistle property, operated by the United company, which is headed up by D. S. Tait, of Privateer fame.

So, all in all, the Bear is experiencing an important revival, keeping its fingers crossed until have passed the crucial days of 1939.

As the bees buzz busily from bloom to bloom, they carry the pollen which makes the seeds fertile. But tobacco flowers have no need for bees; they do their own pollination. Which is fortunate for the Burbanks of tobacco culture, for they can tie a flowering head in a bag without condemning it to perpetual spinsterhood and so found a blue-blooded tobacco family without fear that a busy bee will mix the breed.

Since Columbus discovered the tobacco plant, hundreds of varieties have been developed, each with leaves having their own particular qualities of size, texture, flavour and fragrance. Turkish leaves, for instance, will lie in a baby's hand while a leaf of Burley would almost cover the baby.

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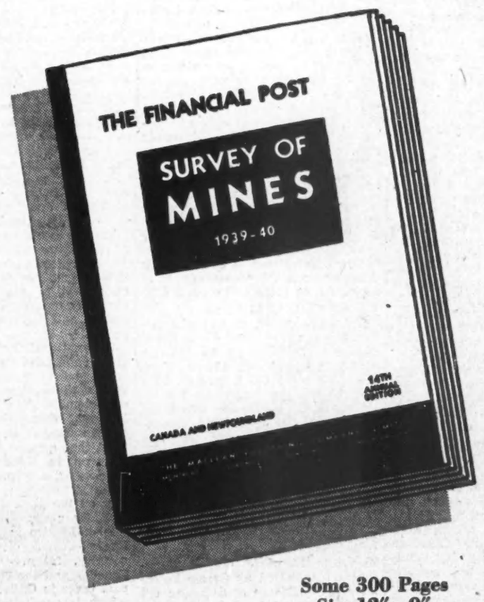

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"Pete"—Producing War Necessity

Oil Price Cuts Now Likely Over by Heavy War Demands

International Petroleum Co. officials, questioned by The Financial Post as to the effect of war on their company, state that they cannot see how it is likely to restrict operations of the petroleum industry in South America.

Oil is now almost as much an essential of war as guns and shells. Without an ample supply of the 100 octane rating gasoline (as compared with ordinary high-grade motor fuel ranked at 75) the air forces of combatant nations would be helpless. Their tanks and mechanized transport would be almost as badly tied up, although some substitutes might be used in this case. The navies of the world, too, depend on bunker fuel oil for their power. Waging a war without access to adequate supplies of a wide range of petroleum products would be made immeasurably more difficult.

Current Earnings Lower

International Petroleum Co. will not be issuing a financial report until after Dec. 31, 1939. When the next report comes, it will cover an 18-month period and shareholders can expect important changes.

In the meantime there is little indication as to trend of actual results. Company officials indicate to The Financial Post that the 12 months ended June 30, 1939, did not result in profit as high as in the 12 months ended June 30, 1938, when net was equivalent to $1.98 a share on the common and preferred stock. Just how much decline there was is not known, although it is stated not to have been very great. Officials indicate that it is expected that a proportionate decline may continue over the remainder of the 18-month period. This experience is closely in line with that of most U. S. oil companies.

The company's action in declaring an extra of 25 cents a share last June as compared with the former rate of 50 cents a share supports the indicated lower profits.

Chief factor contributing to the lower earnings has been reduced world levels for crude oil prices, company officials say.

International Petroleum Co. publishes monthly figures for the production of crude oil from its Peruvian and Colombian fields. These show a comparatively small decline for the past year as follows:

Crude Production
Years Ended June 30

	1939 bbls.	1938 bbls.
Peru	12,180,911	14,013,681
Colombia	21,617,844	20,476,025
	33,798,755	34,489,706

Daily Aver. Crude Output
12 Months Ended June 30

	Peru bbls.	Colombia bbls.	Total bbls.
1938	36,037	56,099	94,135
1939	33,372	59,227	92,599

War Will Shift Markets

It is clear that war conditions can interrupt a large part of the petroleum now coming to Britain and France from the Far East, from Borneo, Roumania, Russia, Iran, Iraq and Egypt. The Mediterranean route will not be too safe until Italy declares herself definitely. The route around Africa will be long and expensive. The Atlantic, however, will be kept open at any cost.

Thus, Britain and France at war are likely to become more dependent on supplies of petroleum products from North and South America. With large and growing resources in South America, International Petroleum should have no difficulty in disposing of its output.

Under ordinary peacetime conditions, International Petroleum sells a certain amount of oil to Germany and allied or subsidiary countries in central Europe. Much of this market is now lost. Markets in the Orient will not necessarily be interrupted, although this will depend on the spread of war and the amount of available shipping.

Cut Down Civil Uses

Also to be considered is the restriction on the use of private motor vehicles in Great Britain, France, and perhaps even Canada. Complete restriction, especially in this country, would reduce the normal markets, but officials feel that the expected gain from needs of the armed forces would more than offset any reductions felt in regular demand. Thus, it is felt that total demand for petroleum products would be at least as large, and likely much larger, during wartime.

What happened to petroleum output and prices at the time of the last war can hardly be taken as more than a partial indication of what might happen under similar conditions now. In 1913 Canada had only 50,558 motor vehicles registered. But by 1919 this had grown to 341,316 units. If the United States is not included, world registration of motor vehicles was only 719,246 in 1916, but by 1919 this had grown to 1,286,948. Figures for the United States show a gain from 3,512,996 registrations in 1916 to 7,565,446 by 1919. Obviously the last war was the beginning of the period of great expansion for the automobile. This probably accounts for the major part of the changes in petroleum output recorded during the period.

Oil Output Rose

U. S. Bureau of Mines figures show that world production of crude petroleum rose during the war period as follows:

World War Time Crude Oil Output

	(bbls.)
1910	227,800,000
1915	432,000,000
1920	662,900,000

International Petroleum's predecessor company of the same name was formed in Sept., 1914, to take over three British companies. It was not until 1920 that the present company was formed to take over its predecessor and the Tropical Oil Co. which owned the famous de Mares concession in Colombia. Colombia shows its first commercial crude petroleum production in 1922, although Peru had been producing from 1900 in small quantities. Venezuela, the third country in which International Petroleum has oil-producing interests, first shows recorded production in 1921, but since then has shown remarkable gains, until today it is the world's leading exporter of this commodity. Shifts in producing centres from 1915 to 1936 are shown by the following figures.

Representatives of prominent British petroleum and financial interests have just completed a survey of the Alberta oil fields. Purpose of their study was to determine feasibility of building a pipe line from Alberta fields either to the Pacific coast or to the head of the Great Lakes. It is now generally agreed that a pipe line is necessary for the economical marketing of oil in eastern Canada. Picture shows laying a pipe line in Turner Valley.

Imperial Oil photo.

Crude Oil Suppliers
(Millions of barrels)

	1915	1936
United States	281.1	1,098.5
Russia	68.5	191.9
Venezuela	....	154.5
Roumania	12.0	63.7
Iran	3.6	57.3
Mexico	22.9	41.0
Netherlands East Indies	11.9	49.3
Iraq	....	29.4
Argentina	6.5	15.4
Colombia	....	18.7
Peru	2.6	17.5
Trinidad	0.7	13.2
British India	8.3	9.3
Borneo	....	5.0
Poland	5.3	3.7
Germany	....	3.0
Japan	....	1.9
Ecuador	....	1.7
Canada	....	1.4
Egypt	....	1.3
Bahrein Islands	....	1.3
	432.0	1,829.0

Higher Prices Likely

Trend of crude petroleum prices during the last war period was definitely and spectacularly upward. At present and for some time past, the world crude oil price structure has not been satisfactory to the producing companies. In spite of record output, profits have not kept pace and the chief reason apparently has been that profit margins have been pared because of low prices. Just recently in the United States, the price of crude oil in some major centres was reduced by 20 cents a barrel. Although the reduction has since been largely restored and measures taken to restrict output through complete shutdowns of oil fields in six of the states, it is not certain that a permanent solution has been found.

The fly in the ointment is the fact that certain states, notably Illinois and California, do not enforce measures to control output of crude. This makes control on the part of the other states less effective. The United States is by far the largest producer and consumer of petroleum products and prices are really set by trends in that country.

Now, outbreak of a war, with its special demands and admittedly inflationary tendencies, will undoubtedly eliminate the current weakness in the price structure of the petroleum industry. Whether or not substantial price increases will be incurred is not known, but even firmer or slightly higher prices would be a big help to International Petroleum and other crude oil producers. Already reports indicate higher prices in the United States for certain grades of lubricating oils suitable for airplane engines because of European demands.

1913-1921 Gas Prices

Some idea of what happened to prices for crude oil and gasoline in Canada at the time of the last war is given by the following figures. The crude oil prices are approximated by dividing the Canadian output in barrels by the total value. It is not claimed that the result is entirely accurate, but it does indicate the trends. Gasoline prices are those published by the Dominion Bureau of Statistics and are monthly quotations per gallon supplied by Imperial Oil for gasoline f.o.b. Toronto.

Oil and Gas Prices

	Crude per bbl. $	Gas per gal. Toronto c.
1913	1.78	25
1914	1.60	20
1915	1.39	27
1916	1.98	27
1917	2.53	30
1918	2.90	32
1919	3.06	32
1920	4.19	38
1921	2.42	35

Transportation Facilities

Considering the effect of a general war on International Petroleum Co., or any other company producing crude oil or interested in the export markets, a matter of great importance is that of transportation. Tankers are slow-moving boats and would undoubtedly be an eagerly sought prey by enemy raiders. This would make it likely that the North Atlantic, as the most easily defended ocean shipping lane as well as comparatively short, would be most used.

Already the British Admiralty has issued general instructions to shipping, including oil tankers, telling them where they can go and where they are warned away from. Armed convoys are to be provided for essential shipping.

Lloyd's register shows that the oil tanker fleet of the world at the end of 1938 consisted of 1,731 tankers with a total tonnage of 11.4 million tons. Of this total, the British Empire owned 498 and France 30. Italy and Germany together owned 121 oil tankers of more than 1,000 tons each.

How the world oil tanker fleet was registered at the end of 1938 is shown as follows:

Oil Tankers of 1,000 Tons and Upward

Countries where owned:	No.	Tons
Great Britain & Ireland	435	2,919,566
Canada	31	129,514
Other British Dominions Colonies, etc.	32	215,161
America (United States)	421	2,800,780
Argentina	25	123,044
Belgium	9	65,559
Denmark	14	106,472
France	50	317,913
Germany	37	256,093
Holland	107	537,564
Italy	84	426,002
Japan	47	429,790
Norway	272	2,117,381
Panama	54	469,664
Russia (Soviet Union)	28	132,853
Spain	15	70,649
Sweden	19	158,815
Venezuela	23	63,445
Other countries	28	96,615
Totals	1,731	11,436,880

These figures do not tell the whole story, however. It is a common story that boats which are actually the property of other countries may be registered under the British flag for one purpose or another, frequently for protection. The reverse is undoubtedly also true and it would not be at all surprising if some of the oil tankers shown as registered in such countries as Panama, for example, were controlled by British capital or interests closely allied with Canadian or British oil firms.

Assuming that war will mean an increase in total demand for petroleum products with the chances in favor of increasing dependence on South America for supplies, the next question in so far as International Petroleum is concerned is whether or not the company is in a position to increase its output.

New Field Starts

On Aug. 14, 1939, oil started flowing through the newly completed pipe line opening up an entirely new crude producing area in eastern Venezuela. Oil is now flowing through this pipe line at the rate of around 30,000 bbls. daily and being used to fill the 500,000 bbl. storage capacity built on the northern Venezuelan sea coast near Guanta. This line has a potential capacity of 100,000 bbls. daily which could be expanded to double this size without too much difficulty. Ownership of this line is reported to be divided as follows: Mene Grande Oil Co. (subsidiary of Gulf Oil Co.) 33 1/3%; Standard Oil of Venezeuela (controlled by Creole Petroleum, a subsidiary of Standard Oil of New Jersey, in which International Petroleum is understood to have over 500,000 shares) 16 2/3%; Lago Petroleum (also a subsidiary of Standard of New Jersey) 16 2/3%; Royal Dutch Shell, 16 2/3%; and International Petroleum Co., 16 2/3%. International Petroleum is also receiving a one-quarter interest in the approximately 65,000 bbls., daily crude output of Mene Grande in other parts of Venezuela. Altogether, this seems to open up an important new crude supply at a time when it may be particularly profitable.

In Peru, output of oil has tended to decline in recent months and it is understood from company sources that it would not be possible nor economical to increase output from this field at present.

In Colombia, output from International Petroleum's fields has recently reached the capacity of the Andian National Corp.'s pipe line. This factor limits the possible increase in output from Colombia that might otherwise be made.

For some months past, however, Andian National has been experimenting on improved methods of pumping the oil through its line with the object of eliminating "surge," that is the recurring return force exerted by the oil in line against the action of the pumps. It is claimed that this object has been reached and that, in the near future, improved methods of operating the lines will permit the handling of an additional 3,000 bbls. of oil daily. After this limit is reached, however, the handling equipment probably will place pretty close limits on any further immediate expansion.

Thus, except for the newly opened Venezuelan fields in which International Petroleum has a partial interest and which could provide around 30,000 bbls. daily in additional output as soon as the new pipe line gets up to capacity operations, immediate prospects for the company expanding its output seem limited to the 3,000 bbls. daily from Colombia.

Aviation Gasoline

Airplane operations require a high quality gasoline, ordinarily around 100 octane rating. At present trade sources estimate that capacity of the United States refineries to produce this type of gasoline is only just about able to keep pace with growth of air transport in that country. To provide any substantial margin for export would apparently involve increased capacity. Oil circles estimate that this increase could be made without much delay.

The output of the Venezuelan fields in which International Petroleum is interested apparently is largely handled by the huge refineries in the Dutch West Indies at Aruba and Curaçao. Reports indicate, however, that refineries are to be built in Venezuela. No information is available as to the potential output of 100 octane gasoline from the Aruba and Curaçao refineries, but it is know that crude from all of International Petroleum's South American fields is suitable for production of this type of gasoline.

Oil Stocks Low

Trade reports suggest that stocks of petroleum products in Europe are surprisingly low. One estimate shows that Germany has stocks equivalent to peacetime needs for about six months. Data on stocks in France and England are not available.

International Petroleum officials again emphasize that there has been no evidence of political agitation against the company in either Peru or Colombia. They are inclined to feel that war conditions would so change conditions, with the likelihood that greater prosperity would be seen in these countries, that chances of any marked change in political relations are small. This fear on the part of investors is admittedly a repercussion of the action of Mexico in expropriating all foreign-owned oil fields in that country, followed by trouble in Ecuador and the special copper export taxes in Chile. It is something which is exceedingly hard to estimate, but it is generally admitted that this possibility will continue to hold back speculative interest in International Petroleum stock for some time.

New Westminster Plan Of Refunding Presented

From Our Own Correspondent

VANCOUVER.—Refunding of the city of New Westminster's bonded indebtedness is being planned, as a result of a general survey made of the corporation's financial situation by Griffiths & Griffiths, chartered accountants.

The city has a sinking fund of $2 millions, leaving a net debt of about $5 millions. Present city bonds carry up to 6%. It is hoped to reduce interest rates to 4% or 4½%, to save about $47,000 annually. Present sinking fund shortages could then be wiped out in 25 years by annual payment of about $29,000.

The financial survey indicated that New Westminster's affairs would have to be handled carefully during the next few years, but that the position was capable of adjustment on a sound basis.

September Dividends Show Gain of $3.4 Millions

Dividends scheduled for payment by Canadian corporations in September of this year are estimated by The Financial Post at $23.2 millions. This is $3.4 millions higher than the $19.8 millions paid in September of last year.

Largest single factor contributing to the higher payments this year is $1 a share being paid by Noranda Mines and requiring $2.2 millions. This company made no payment last September. Canada Dry Ginger Ale is also making a payment of 50 cents a share this month on an interim basis.

Six Extras Scheduled

There are six extras scheduled for payment in September. Agnew-Surpass Shoe Stores is paying an extra of 20 cents a share on its common. Asbestos Corp. is distributing an extra of 15 cents a share and David & Frere is paying 10 cents a share as an extra on its class A stock.

The other three companies to pay extras are mines. Central Patricia is paying an extra of one cent, as is Perron Gold. Macassa Mines is paying one of 2½ cents a share.

The September increase of 3.4 millions is insufficient to offset the decline in dividend payments shown for the first eight months of this year as compared with last year's levels. It is, however, the second successive month to show gains, August having shown an increase of slightly under $600,000.

Aggregate Down Slightly

Aggregate dividend payments for the first nine months of 1939 come to $199.9 millions as compared with $202.4 millions for the first three quarters of last year. This is a decline of $2.5 millions, or a little more than 1%. It is a little early to attempt a forecast of probable payments for the entire year.

Monthly Dividends

	1939 $	1938 $
January	20,670,579	23,078,522
February	7,002,808	5,018,310
March	26,233,492	23,731,375
April	20,895,644	22,535,469
May	6,892,927	x,711,004
June	64,524,477	69,178,056
July	23,543,271	27,403,971
August	6,506,837	5,926,268
September	23,186,734	19,844,761
	199,856,769	202,427,736

Details of individual payments scheduled for this month follow, together with estimates of bond interest payments.

Summary of September Payments

	1939 $	1938 $
Dividends	23,186,734	19,844,761
Bond interest	14,691,000	13,621,000
Total	37,877,734	33,465,761

Dividend Payments

Company:	Rate	Due	Amount $
Agnew-Surpass, c.	.30s	1	23,887
Do., bonus	.20	1	15,925
Aluminum, pref.	1.50q	1	118,494
Ang.-Can. Tel., A	.15q	1	73,065
Asbestos Corp.	.15q	30	90,000
Do., bonus	.15	30	90,000
Assoc. Breweries, c.	.20q	30	47,800
Bk. of Montreal	2q	1	720,000
Bk. of Toronto	2.50q	1	150,000
Bk. Can. Nationale	2q	1	140,000
Bright, T. G.	.07½q	15	7,500
Do., pref.	1.50q	15	11,434
Canada Cement, pf.	1.25q	20	251,066
Canada Cycle	.25	30	25,000
Do., 1st pfd.	1.25q	30	12,500
Can. & Dom. Sugar	.37½q	1	562,500
Canada Dry	150	15	307,578
Canada Malting	.37½q	15	74,614
Can. Vinegars	.20q	1	27,600
Can. Wire & Cable, p.	1.62½q	15	46,704
Do., A	1q	15	29,669
Can. Inger. Rand	1q	5	95,200
Can. Int. Inv. Trust, p.	.50q	1	8,047
Can. W. Nat. Gas, pf.	1.50q	1	41,532
Cap. Wire Cloth, p.	.38q	1	3,800
Central Patricia	.04q	30	100,000
Do., extra	.01	30	25,000
David & Frere, A	.15s	30	3,450
Do., bonus	.10	30	2,300
Distillers Seag., c.	.50q	15	871,322
Dom. Ang. Invest., p.	1.25q	1	16,875
Dom. Foundries, pf.	1.50q	1	18,000
Dom. Scot. Invest., p.	.50q	1	24,563
Electrolux	.30q	15	371,250
English Elec., A	.62½q	15	26,622
Falconbridge N.	.07½q	29	250,313
Famous Players	.25q	30	104,881
Firestone Pete.	.01	5	12,500
Ford Motor, A, B	.25q	16	414,740
Foundation Pete.	.01	5	11,000
Gatineau Pwr., c.	20q	30	328,884
Hallnor Mines	.15	1	300,000
Ham. Un. Theat., p.	1.50q	30	11,816
Hollinger Cons.	.05	9	246,000
Imperial Tob., ord.	.10q	30	945,103
Do., pref.	3½s	30	240,900
Inter. Mining	.10q	20	51,897
Inter. Nickel, c.	.50q	30	7,292,013
Lake Shore Mines	1q	15	2,000,000
Lake of Woods M., p.	1.75q	1	26,250
Laura Secord	.20q	1	57,500
Lava Cap G. M.	.03	30	73,222
Loblaw Groc., A, B	.25q	1	207,089
Loblaw Inc., c.	.20q	1	66,765
Louisiana Land	.10q	15	296,735
MacKinnon Steel., p.	1.75q	15	6,312
McIntyre Porc.	.50q	1	399,000
McK. Red Lake	.03q	15	87,000
Macassa Mines	.05q	15	133,903
Do., extra	.02½	15	66,951
Montreal Cottons	.50q	15	15,000
Do., pref.	1.75q	15	52,500
Monarch Rylts.	.01	5	12,500
Montreal Loan	.50q	15	12,000
New Meth. Ldy., p.	1.62½q	1	4,062
Noranda Mines	†1	15	2,239,772
Northwest Util., pf.	1.50q	1	15,189
N. S. Light & Pr., p.	1.50q	1	30,000
Ogilvie Flour, p.	1.75q	1	35,000
Pacific Pr. & W., c.	.05q	1	927
Do., extra	.05	1	927
Pacific West. Inv., p.	.12½q	1	3,125
Do., com.	.072q	15	10,500
Paton Mfg., pfd.	1.75q	15	10,500
Perron Gold	.04q	21	80,000
Do., extra	.01	21	20,000
Petrol Oil	.02s	30	4,400
Photo Engravers	.50s	1	15,000
Pickle Crow	.10q	30	300,000
Prairie Rylts.	.03	5	37,500
Rolland Paper, p.	1.50q	1	22,500
Royal Bank	2q	1	700,000
Russell Ind.	1.75q	30	14,000
Do., pref.	1.75q	30	16,800
Sec. Std. Rylts., p.	.01	1	25,035
Simon & Sons	.15	30	4,507
Do., pref.	1.75q	30	4,977
Siscoe Gold	.03	15	139,201
Stuart, D. A. Oil, p.	.20q	1	8,800
Sundance Rylts.	.02½	5	37,500
Sunset Oils	.04	15	67,200
Sylvanite Gold	.05q	30	164,975
Toronto Elevators, p.	.65½q	7	19,617
Union Gas	.20q	15	141,239
Walker-G. & W.	1q	15	724,004
Do., pref.	.25q	15	140,204
Total			23,186,734

†Interim.
q—Quarterly, s—Semi-annually.

Bond Interest Due in September

	1939 $
Municipal	2,280,000
Provincial	4,986,000
Dominion	7,423,000
Total	14,691,000

The third COMPONENT

IN EVERY exchange of goods and services there is, in addition to the commodity sold and the price paid, a third component. Call it Honesty... Integrity... Fair Dealing... however named, it is a priceless asset to continuing business success.

To the Building Trades of Canada the Name "G. L. A." on Any Product is a Symbol of This Third Component.

Gypsum, Lime and Alabastine,
Canada, Limited

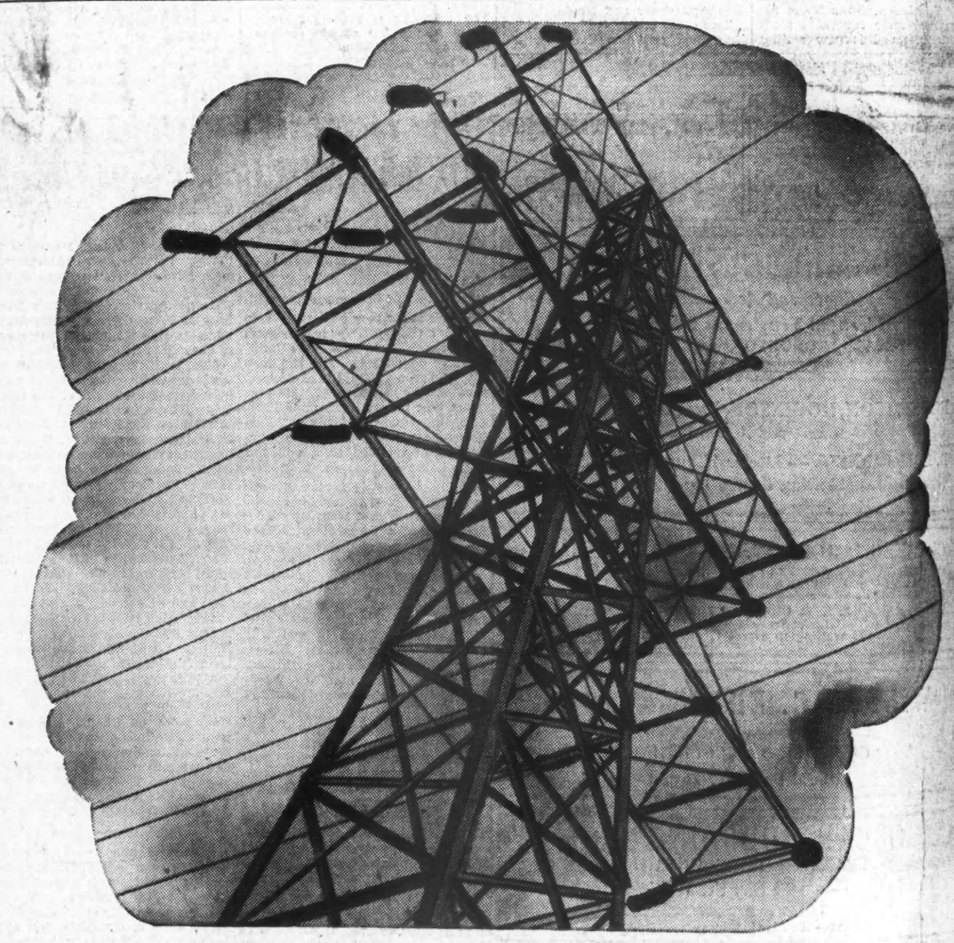
Head Office: Paris, Ontario
General Sales Offices: Gypsum House, 50 Maitland St., Toronto
VANCOUVER CALGARY WINNIPEG
TORONTO MONTREAL

Gypsum Plasters, Gypsum Fireproofing and Structural Materials, Chemical Lime — Lime Products, Insulating Materials, Acoustical Materials — Gypsum Wall Board and Lath, Interior and Exterior Stucco, The "Alabastine Line" of Decorating Materials

Neon Prod. Invest. Corp. Starts Wind Up Move

A resolution providing for the winding up of Neon Products Investment Corp. was passed by shareholders at a recent special meeting. Neon Products Investment Corp. is the holding company which controls Neon Products of Western Canada through ownership of 28,607 common shares out of 54,836 shares outstanding.

In liquidating the holding company, each shareholder will be given shares of Neon Products of Western Canada in exchange for shares of the holding company on a share for share basis.



From the Men of Algoma comes steel—the symbol of enterprise in every corner of Canada.

Steel is the backbone of buildings... the mainstay of mines... the staple of railroad materials... the substance of bridges... the fundamental fabric in machinery, tools, mechanical products... the protector against wear and erosion in hundreds of products and structures.

Tasks like these take steel to the scene of activity, whether it's on frontier or farm, in city or suburb. In Canada, wherever steel is used, steel from the Men of Algoma is on the job—for their products are fabricated, forged and machined into forms for practically every steel need.

Stocks of steel sections produced by the Men of Algoma are maintained by leading Canadian fabricators and warehousemen and at the mills of the company, Sault Ste. Marie.

ALGOMA STEEL
ALGOMA STEEL CORPORATION, LIMITED

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Lime

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Y WINNIPEG
MONTREAL

Gypsum Wall Board and Lath
Interior and Exterior Stucco
The "Alabastine Line" of
Decorating Materials

Neon Products of Western Canada through ownership of 28,607 common shares out of 54,836 shares outstanding.

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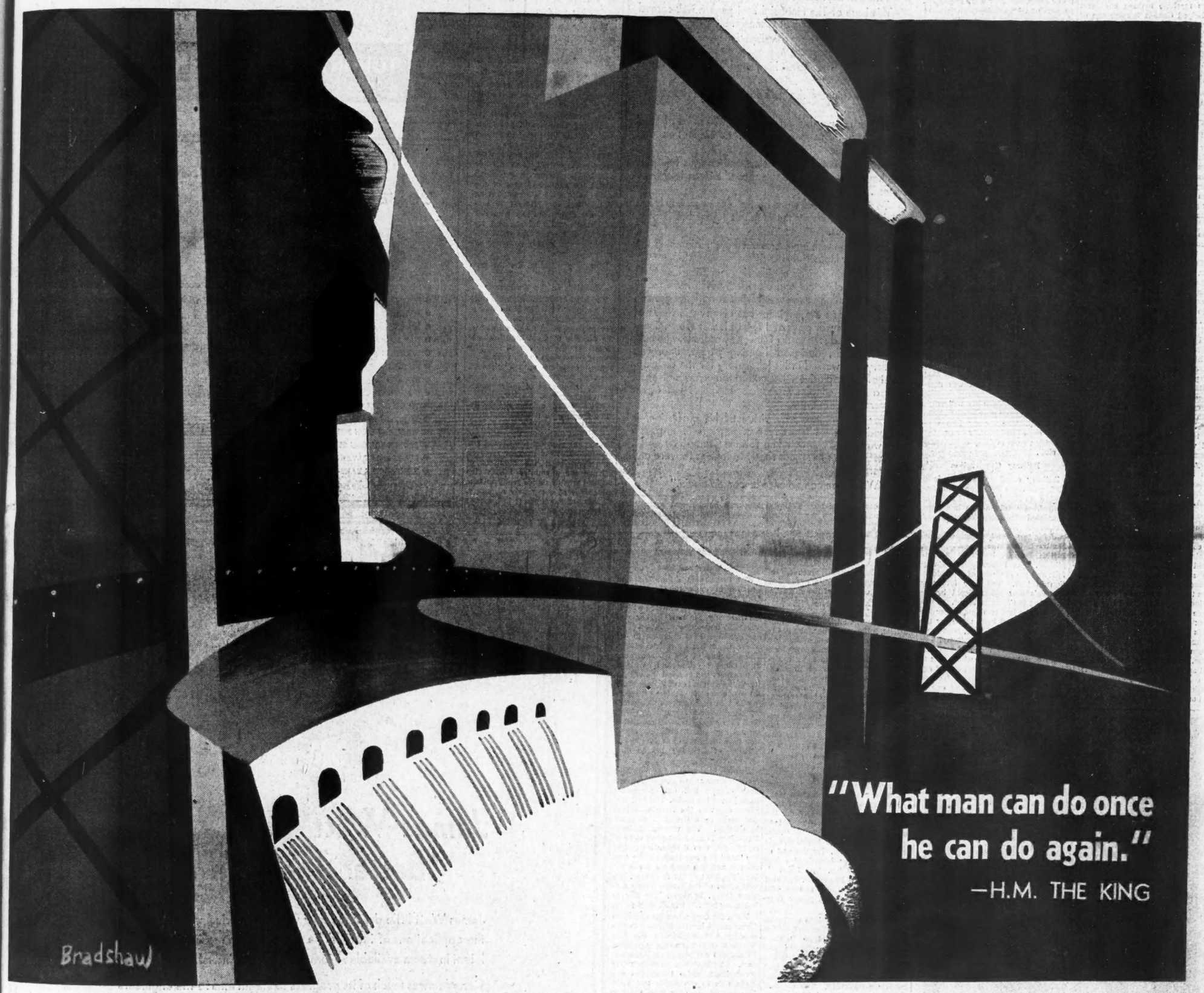
THE FINANCIAL
POST
TORONTO, SEPTEMBER 9, 1939

BUILDERS OF CANADA



A Tribute to the Engineer and His Achievements

By C. R. YOUNG

Professor of Civil Engineering, University of Toronto.

By no less authority than that of Lord Tweedsmuir, the engineer has been assured that the work of his hand has always furnished the foundation of any civilized society.

Whoever looks about him cannot but admit the profound influence of the engineering profession on the political, economic, social and cultural life of the people of this Dominion.

Scarcely more than 50 years ago the total value of all improvements between Winnipeg and the Pacific Ocean, according to C. A. Magrath, did not exceed a million dollars.

Since then, largely due to the skill and enthusiasm of the engineer, Canada has been transformed from a country almost wholly agricultural to one of the outstanding industrial nations of the world.

In the pioneer years the energies of the engineer were naturally directed largely to the improvement of transportation and communication. There came the roads, the canals, the railways. Ships were built, and harbors, docks and aids to navigation were provided.

Transportation commitments made in order to consummate and round out Confederation were fulfilled by the engineer and have left their mark on the political destinies of the country.

The bounty of nature and the resourcefulness of the engineer have given to Canada a plentiful, cheap and dependable supply of electric power. This circumstance has had much to do with securing for Canada and Canadian enterprise a place in world markets.

Moreover there are many instances in which easy availability of power has brought entirely new communities into being. One of the most striking achievements of power development and distribution has been to give to 60 per cent of our population the boon of electricity for light and labor-saving devices. This has had far-reaching effects on our manner of living and doing business.

Those who dwell in towns and cities are in the special debt of the engineer. He has devised works, equipment and processes that ensure pure water, food and air, the expeditious removal of wastes and dependable transport.

He has thus had a large share in the reduction of the general death rate of Canada by 36 per cent in the past 50 years, and the lengthening of the expectation of life by 27 per cent.

In the solution of the manifold technical problems of the country the engineer has borne himself with distinction and steadfast devotion to duty. Except in the earlier years the work has been largely that of native Canadians.

Basic training for the complex and exacting duties involved is now available in varying degrees in the fourteen engineering colleges of the country.

Experience has shown that the technical problems of Canada, influenced as they often are by special physical or human conditions, can best be met by engineers deriving a large part of their experience within our own borders.

This issue of The Financial Post is devoted to telling the impressive story of what engineering has done in promoting the development of Canada

The Engineer Has Paced Progress

Natural Wealth of Dominion Harnessed by the Engineer

"Engineering: The art and science by which the properties of matter and the sources of power in nature are made useful to man."

It would almost seem that old Mr. Webster of the dictionary spoke with a prophetic gleam of what engineers would do for Canada.

It has been engineers who have transformed Canada from a wilderness buffalo run and outpost of civilization. Engineers built railroads which have made Canada a Dominion. Engineers who made Canada a great industrial community. It was machine making engineers who helped Canada become one of the world's great granaries of wheat and foodstuffs.

And engineers are still the great Canadian pioneers. Mining engineers, hydro-electric engineers, road builders and many others are taking away from the wilderness tens of thousands of square miles yearly and giving these virgin tracts to the Canadian people for their use, profit and enjoyment.

History of Pioneering

For the history of Canadian engineering from the days of the early explorer to the modern machine age is the history of pioneering, the history of men who depend primarily on their own initiative to attain their goal always a little in advance of that reached by their predecessors.

The military engineer of the days of Frontenac and Champlain looked only to their own resourcefulness and the help of an axe to build their roads, erect their fortifications around the then so-called centres of civilization and to blaze the way outward and forward.

The engineer of today is no whit less resourceful. If the tools to his hand are such as his forefathers could not have imagined in their dreams, his field too has broadened and his goal is more ambitious. And he too is still forced often to employ primitive weapons in his conquests. Not long ago Government engineers were engaged in construction of one of Canada's 120 airports in an isolated region of Northern Ontario. Grading machinery is heavy, and to bring it through the bushland would have been a long and expensive job. The engineers felled heavy timbers, squared them with axes and made their own grader efficient enough to create a safe emergency landing field for modern T.C.A. planes.

The Military Engineer

Canadian engineering in its broadest sense must go back long before the conquest of Quebec for its early chapters. The race which gave the world a de Lesseps had given Canada soldiers and builders of the calibre of Samuel de Champlain.

As today the names of many early engineers have received less prominence in Canadian history than the work they accomplished. Military roads were being opened for short distances before 1640, including a wagon track from Montreal to Lachine. The first road between Montreal and Quebec was opened in 1734.

In 1693 M. de Beaucour, still youthful officer of engineers, carried out a major feat in the fortification of Quebec on plans designed by the celebrated French engineer, Vauban. Waterways were being explored, settlements and forts built and the engineer was pushing the frontiers of Canada back toward the Great Lakes.

Before the progressive regime of Governor Grave Simcoe the start was made on the St. Lawrence waterways. In 1779 three canals were operating at Coteau du Lac, Cascade Point and Mill Rapids. Their locks were primitive affairs and only barges could be brought up or down, but they were the forerunners of such accomplishments as the Welland flight locks with their 135 foot climb, and the Peterborough lift lock. Then as now the St. Lawrence was a bottleneck. Schooners on the Great Lakes could not come down to Montreal. Ocean shipping could not then venture much farther than Quebec.

Simcoe Laid Foundations

The modern road builder and bridge builder can find worthy predecessors in Governor Simcoe and his engineering corps. Ontario's Dundas highway was initiated by this aggressive, efficient soldier and Upper Canada pioneer. By 1794 it had broken through the virgin forest from Burlington Bay to the fork of the Grand River where Simcoe planned the establishment of London as the capital of Upper Canada. In the same year Yonge Street was opened from York to Lake Simcoe. Examples of bridge building of Simcoe's day could be seen in Ontario up to a few years ago. Before the turn of the century the frontiers of Canada had been pushed well past the Great Lakes.

The history of Canada's progress during the 19th century is the history of two engineering eras marked by development of waterways and early highways and the era of railway building. The beginning of the 19th century saw the construction of the Lachine canal. In 1824 the first Welland canal was commenced.

By 1832 the Rideau planned originally for military purposes had been completed. These early 19th century days incidentally saw the transition from military engineering to civil.

Railway Construction

Railway construction dates from 1836, when the first line from Laprairie to St. John's, Que., was opened. By 1856 a line had been completed between Toronto and Montreal. The first major bridge building feat, the Victoria bridge at Montreal, then the longest in the British Empire, had been accomplished. The intercolonial railway followed the promises of Confederation in 1867. The year 1873 saw Canada's first international bridge spanning the Niagara River.

That was just two years after the first survey had been made for the great engineering trek westward, the Canadian Pacific Railway. Ten years later 2,000 miles of rail had been constructed, rail which was to herald Canada's greatest era of expansion and immigration. The tunnelling of the Rockies, still one of the greatest triumphs of engineering, was an accomplished fact. Following in its wake across the prairies came the Grand Trunk Pacific while the Dominion Government took its second plunge into railway ownership with the National Transcontinental across the northern wilderness of Ontario and Quebec. So again Canada's frontiers receded before the conquest of the engineer.

The Twentieth Century

As expansion, agricultural and industrial, followed in the wake of the engineer, so industry and agriculture demanded of engineering new vision and new pioneering to carry it farther along the road of progress. Young, virile and adventurous the 20th century brought new and rapid strides. The dream of Alexander Graham Bell had been realized in the establishment of a telephone exchange in 1878. At the turn of the century it was growing rapidly into what was to become the world's second largest system.

The challenge of natural resources was being accepted by the engineer. Waterpower was making its first appearance as a great giant to be harnessed for the use of man. In 1897 power developed on the Batiscan River and transmitted 18 miles to Three Rivers at 11,000 volts heralded the era of hydro-electric energy for Canada. By the end of 1900 waterpower installations had reached 173,000 h.p. The Shawinigan Water and Power Co. installed its first units in 1901 and in 1906 Toronto took its first power from the mighty Niagara.

Between 1896 and 1912 engineering made its greatest assault on the frontiers of industrial life in Canada. Improved transportation and the revolution in electricity brought industrial production from $481 millions to $1,165 millions. Forest industries expanded. The automotive industry came into its own, presenting a challenge to the engineer not only in the creation of new machinery but in the construction of modern highways. Agricultural production was going forward by leaps and bounds and agricultural machinery was being designed to meet the requirements of vast acreages. The mechanical engineer had his hands full but again engineering paced Canadian progress.

Water and Rail

With these years of industrial and agricultural expansion came Canada's first real adventure into the field of world trade, bringing with it the necessity for new harbor and waterway development. Again engineering turned its attention to the Great Lakes-St. Lawrence artery. The dredging of the St. Lawrence Ship channel established Montreal as a seaport and revived the cry for the St. Lawrence seaway plan. From this cry came the greatest engineering feat in the history of Canada's waterways, the building of the Welland ship canal. Railway expansion took a new spurt, directing attention to modernization as well as expansion of Canada's branch line systems.

At each new step in the march of modern engineering new fields have been opened and new specialists have joined the ranks. The first airplane flight in the British Empire was made by a Canadian engineer in Canada. The war period saw Canadians in the front rank in their contributions to aeronautics and if the Dominion has lagged since that time in aviation progress it has not been the fault of her engineers. Development of the Trans-Canada airways today, however, bids fair to bring her back to her rightful place.

From the time when the Canadian Government invited Marconi to this country and established the first wireless station on the Canadian coast radio has played an important part. Today the network of transmitters, radio telephones and radio aids to navigation and aviation extend not only from coast to coast but to the northernmost points of her icy Arctic coast. There are no Canadian frontiers that radio has not pierced.

Nowhere in the field of modern science, however, has the engineer made a greater contribution to widening the frontiers of this young Dominion than in his exploration and development of her mineral wealth.

The full importance of the mining engineer and those associated with him has been but dimly appreciated. His existence is assumed, but his trust usually overlooked.

His importance to the investor is well recognized. In many cases the report of a recognized engineer is demanded before stock can be offered to the public.

W. G. McBride, professor of mining engineering at McGill University, has written:

"Fifty years ago engineers and geologists played a very small part in mining, probably as great as they deserved. Their knowledge and their training were insufficient and when it came to management they had difficulty in competing with the practical man. Economic geology was in its swaddling clothes and geologists were chiefly interested in mineralogy, petrography and stratigraphy. Mining engineers were largely surveyors, assayers or draftsmen. Neither knew much about the genesis of ores or the rock alteration accompanying mineralization. Mineral discovery was almost entirely a matter of chance, while mining and reduction of the ore was quite unscientific and largely governed by rule of thumb."

How very different are the facts now!

Industry in the Wilderness

The kind of contribution the mining engineer of today is making to Canadian development is unique. For modern mine making involves the creation of great industrial enterprises in the wilderness. It is like setting down deep in the bush a big factory complete with equipment, supplies, workers, executives, their homes, the means of their amusement and support.

But Canada is only on the threshold of economic development. Her settled areas are still sparsely populated. Vast territories lie untouched beyond the physical frontiers of her civilization. Year by year research is rolling back the frontiers of science for a country whose rich natural wealth stands ready to take advantage of every new discovery. The day of the engineer in Canada's development still lies ahead.

To the Builders of a Nation

For 200 years the engineer has paced Canada's progress.

In this comparatively short time he has led this country out of the wilderness to rank as fifth trading nation of the world.

In exploration and development of a virgin land, in its transportation systems, in the building of its cities, in its network of modern communications, in the establishment of its industries the hand of the engineer has been the guiding factor.

This issue of The Financial Post pays a well-earned tribute to these Builders of Canada.

To the men who have developed the world's greatest inland waterways.

To those who have harnessed Canada's water power resources.

To the engineers who have dug her mines, tapped her oil reservoirs.

To the railway builder whose 57,000 miles of steel stand as a monument to faith, determination and achievement.

To the inventor of the telephone and his followers who have given us the world's second largest telephone system.

To the structural work of the engineer which has produced successively the Empire's tallest buildings in Canadan cities.

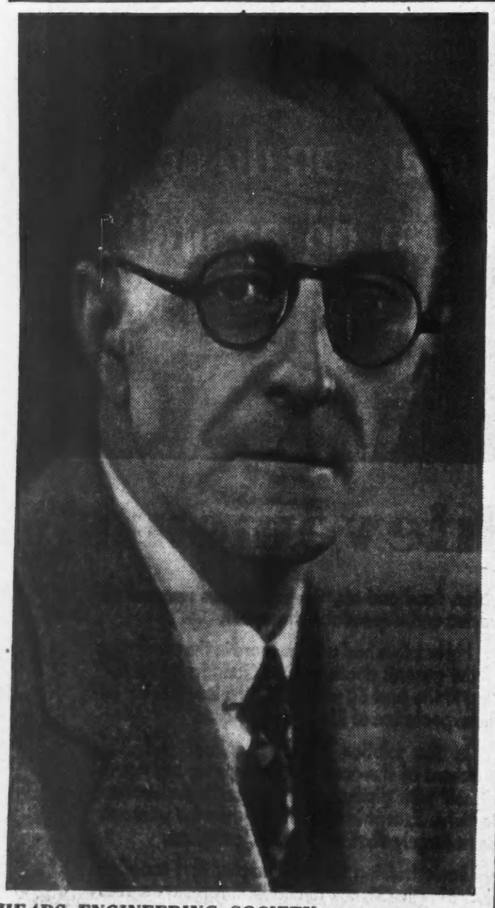
To the men who have produced and maintained the wheels of our industrial life.

To all branches of engineering, military and civil, mechanical, chemical and electrical which have made their contribution to the great work of national growth.

These things the engineer has given us in times of peace. In the war days of 1914-18 it was the engineer again who made the work of the army possible, who built light railroads, designed fighting planes, improved artillery and worked in his laboratory for the development of new explosives. If Canada tomorrow is plunged into a world conflict Canada's engineers will again answer the call to arms.

For the engineer, by virtue of his profession, is imbued with the highest type of patriotism. In peace and war he has expressed his faith in Canada by works. In peace or war he stands ready to take us forward and outward.

"What man can do once he can do again."



HEADS ENGINEERING SOCIETY

Harold Wilson McKiel, dean of the Department of Applied Science and president of the Engineering Institute of Canada, graduate of Queen's, has had extensive experience in industrial and educational work. His interests go beyond the bounds of his own college. He is a member of the board of governors of the Nova Scotia Technical College at Halifax, a member of the American Society of Mechanical Engineers, Fellow of the Canadian Institute of Chemistry and has been a councillor, chairman and vice-president of the Maritime Section of the Engineering Institute. He has also been a chairman of the Maritime Chemical Association.

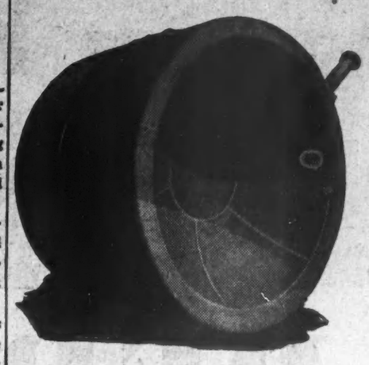
World's Heaviest Traffic

Great Lakes Traffic Exceeds Suez and Panama

More vessels pass through the Great Lakes waterways than over any other stretch of water in the world. In 1936, for instance, 16,614 ships passed through the Sault Ste. Marie canal moving 69.5 tons of freight. In the same year the Suez canal showed a tonnage of 28.2 million tons carried in 5,877 vessels while the Panama canal passed 5,382 ships and 29.6 million tons of freight.

On the Great Lakes and St. Lawrence canal construction has meant billions to Canadian agriculture and Canadian industry. When rail traffic was still in its infancy cargo vessels were carrying Canada's wheat crop to the sea. Today it is still the cheapest and most effective method of moving the riches of the West to an export market. When the Welland canal was opened in 1932 the S.S. Lemoyne, 633 feet long and still the largest cargo vessel on the lakes carried 530 bushels of grain down the lakes. Bulk freight on the Great Lakes has steadily increased in competition with modern rail traffic. Ore, coal, oil and grain are depending to an even greater extent than before on Canada's waterways.

Even in its present state the St. Lawrence waterway provides an artery for some ocean going freighters. The size of these boats is limited by the lock at Cornwall to 225 feet in length and a beam of less than 45 feet. Below this the minimum depth of locks is 14 feet. Above Prescott the canal has now been realigned and a navigable depth of 27 feet provided.



A smart job of WELDING

The segmental fit-up on a pressure vessel of this type must be accurate. The photograph shows the unusual electric welding involved. We are equipped to turn out difficult jobs in steel plate, monel, nickel-clad, nickel, stainless steel and copper-clad steel.

Ask our experienced engineers for advice on any steel plate work.

We erect anywhere in Canada.

THE TORONTO IRON WORKS LIMITED
HEAD OFFICE ROYAL BANK BLDG. TORONTO WORKS EASTERN AVE
Operating SUPREME BOILER & ENGINEERING CO. Limited

WITH EVERY MODERN FACILITY TO SERVE EVERY BRANCH OF CANADIAN INDUSTRY

- NUTS
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- COUPLINGS
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- COPPER BEARING STEEL PIPE
- BLACK and GALVANIZED PIPE
- REINFORCING BARS—RODS—WIRES

The accompanying list shows some of the wide range of quality products which are made in the various departments of our modern plant to serve all branches of Canadian industry.

CANADIAN TUBE & STEEL PRODUCTS LIMITED
MONTREAL

James Watt Built Better Than He Knew

James Watt little dreamed how wide and varied would become the applications of the work he pioneered, in making the power, latent in steam available to turn the wheels of industry.

Canada owes much of its progress to steam and to the engineers who have applied their experience in steam process work to the development of improved operation in other industrial process equipment.

The diversified experience of Foster Wheeler has won recognition throughout Canada and provides the basis for design and fabrication of high efficiency equipment both in the field of steam generation and industrial processing.

FOSTER WHEELER LIMITED
ST. CATHARINES, ONT.
TORONTO • MONTREAL • WINNIPEG • VANCOUVER

The Engineer Has Given Us Waterways

Canada Stands First in World Canal Construction Feats

With 2,200 miles of inland waterway provided by nature from the Atlantic to within striking distance of the prairies, it was natural that canal construction should be the first and last line of attack on her transportation building and that Canadian engineering annals should be filled with achievements in the field of inland navigation.

The history of Canada's waterways has many sad chapters for the debt-ridden taxpayer but from the engineering viewpoint it records few mistakes. The politician has dreamed extravagantly. The engineer has made those dreams, good or bad, come true.

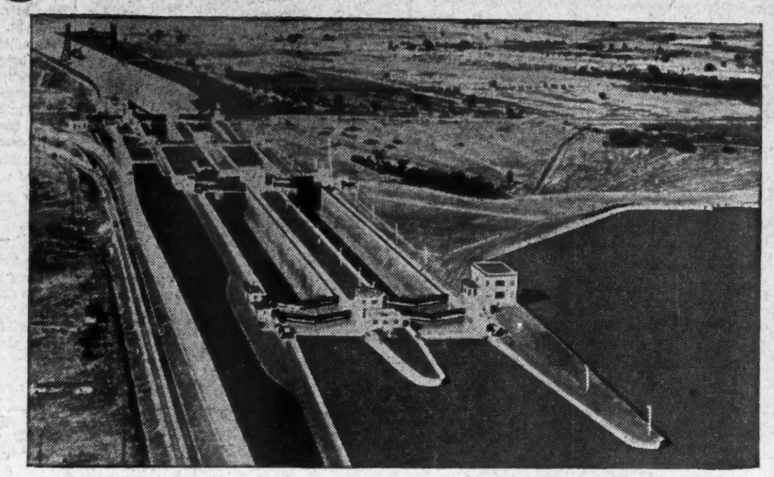
Today the engineer has solved, on paper at least, the final problem of Canada's main waterway — destruction of the 115-mile bottle neck of the St. Lawrence between Prescott, on Lake Ontario, and Montreal. He has presented his blueprints of the plan which would allow 800-foot cargo vessels capable of loading 20,000 tons to cross the Atlantic and steam half way across the North American continent.

Except in its immensity there is nothing extraordinary in the plan for grading out this last step and providing a 27-foot channel with 800-foot locks. It is not as great an engineering feat as that already accomplished by Canada in construction of the Welland Ship Canal.

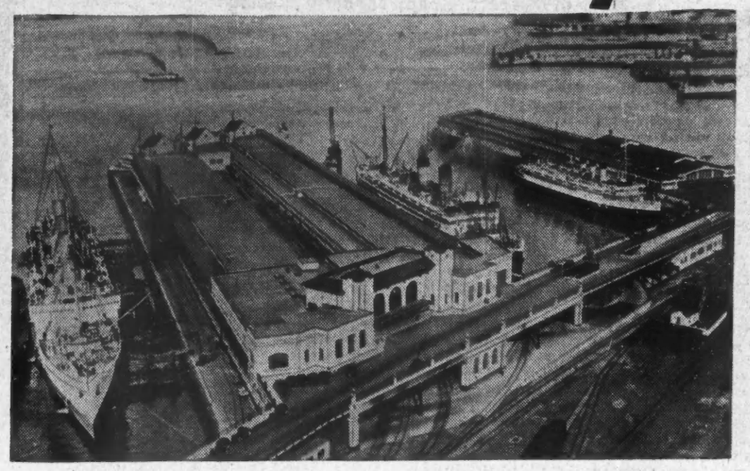
Very briefly, the double-stage plan now recommended by a joint board of Canadian and American engineers contemplates damming the whole St. Lawrence at Chrysler Island and Bernart Island in the international section with one or two dams in Canadian sections.

The two dams in the international section back up the river sufficiently to create two water levels, eliminating the Galop Rapids, the Rapide Plat and the Long Sault Rapids. Instead of constructing separate canals to skirt the rapids, the river itself becomes the deep and currentless waterway. One lock lifts or lowers shipping at Crysler Island. Two more perform the same function at Barnhardt Island. The series of six shallow lock-encumbered canals is replaced by one, just above Cornwall, one of the main purposes of which is to considerably shorten the route.

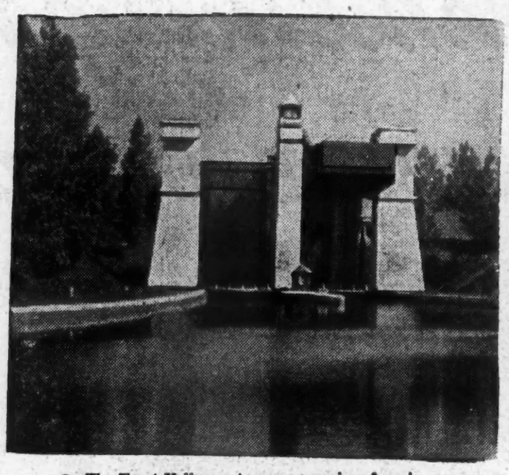
The four Welland Canals have really logged the progress of waterways engineering in Canada. The first, built in 1829, and using the old Twelve Mile and Chippewa Creeks, had 39 wooden locks 110 feet long and with a depth of eight feet. The Grand River at Dunnville was used as a feeder for the summit level. By 1845 it had been enlarged to provide a nine-foot channel. The 39 wooden locks were changed to 27 cut-stone gateways each 26½ feet wide and 150 feet long. In 1835 the navigable depth was increased to 10 feet by raising the banks and walls at the locks, though it was not until 1881 that the canal was fed from the lake. Up to the time of Confederation cost of construction was $7.6 millions. The present Welland Ship Canal has cost slightly more than $132 millions.



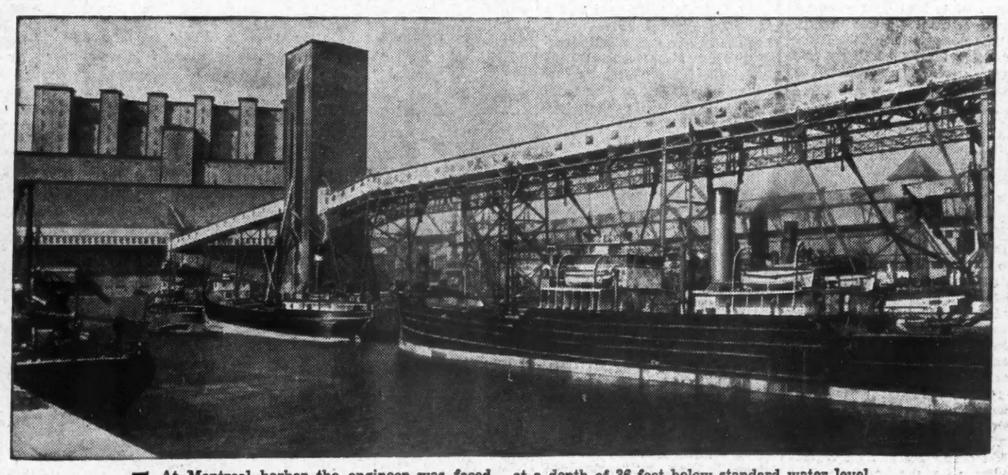
2 Four twin locks, each with a lift of 46½ feet, make the escarpment climb on the Welland. The three shown above, with a total lift of 139½ feet, are in flight one above the other and have a combined length of slightly more than half a mile. Only three other locks, each with the same lift of 46½ feet, are needed to link the difference of 325 feet between the lake levels. These locks all have a usable length of 820 feet, a usable width of 79 feet and a potential water depth of 30 feet.



4 Links between her inland waterways and the world shipping routes, six major seaports have been developed by Canadian engineers. From a structural standpoint concrete cribwork in deep sea piers is recognized as the most outstanding achievement on these projects. Dredging work however has taken its place as a factor in improving seaport facilities. In Vancouver Harbor (above) the first deep sea pier (Lapointe) was constructed on the south shore of Burrard Inlet. Dredging of 127,000 cubic yards of material was necessary to get the depth.



3 The Trent Valley waterways, a series of navigable lakes connected by short canals running 224 miles from the Bay of Quinte on Lake Ontario to Georgian Bay on Lake Huron, is a project not publicized to any extent by political parties responsible for this extravagant luxury. From the engineering standpoint, however, it includes the Peterborough lift locks above, one of the world's noted engineering feats.



5 At Montreal harbor the engineer was faced with the problem of building wharfage without narrowing the river channel and increasing current already resulting from dredging of the St. Lawrence ship channel. Narrow shore wharfs were chosen as the only possible method of overcoming this difficulty. One disadvantage of this arrangement has been that berthing has been limited to 500 feet. Cribs for Montreal wharfs are founded at a depth of 36 feet below standard water level. Concrete cribs used in this construction are all 112 feet long, 42 feet wide and 42 feet high. The original development of Montreal harbor was conceived by the late Sir John Kennedy. Today there are many ready to criticize in the light of present day conditions. But the very disadvantages of its location have been a challenge accepted by the engineer and to a great extent overcome.

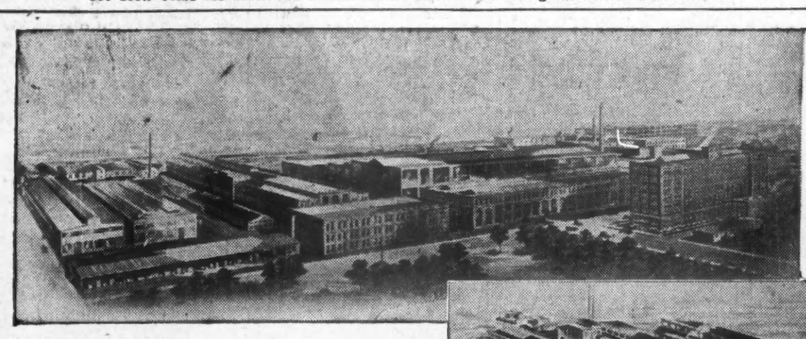
SERVING ALL BRANCHES OF CANADIAN INDUSTRY

ELECTRICAL CONDUCTORS

STEEL WIRE ROPE

CANADA WIRE AND CABLE COMPANY LIMITED

MONTREAL TORONTO HAMILTON WINNIPEG REGINA CALGARY VANCOUVER



Main Plant and General Offices of the Canadian Westinghouse Company Limited where are carried on the manufacturing operations of the Air Brake and Electric Divisions.

The West Plant where are located the foundries as well as departments for lamp and tube manufacture and the enamelling departments for the Refrigerator, Washer and Range Divisions.

36 Years of Electrical Engineering Achievement

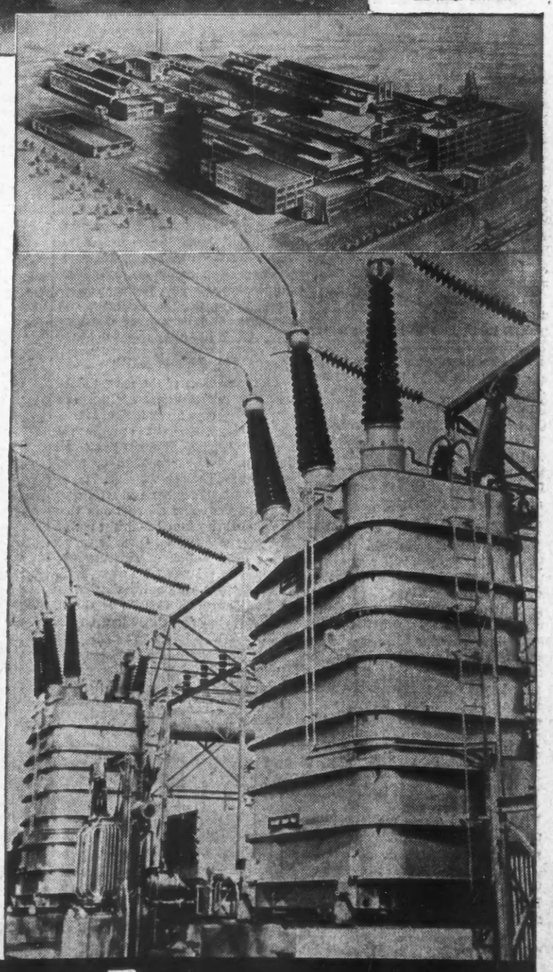
Thirty-six years ago the Canadian Westinghouse Company was organized to manufacture electrical equipment of every description to utilize the hydro-electric resources of the country which at that time had been developed to the extent of 275,000 horse power. Today over 8,000,000 horse power of electrical energy are produced in Canada, of which over one-half is generated through machines of Westinghouse manufacture.

Westinghouse has thus played an important part in the development of electrical resources which have placed Canada in the forefront of nations. Canada's basic industries—mining, pulp and paper and manufacturing—are very largely electrified; indeed, they owe their existence to the ready supply of electrical energy.

In the ranks of Westinghouse engineers are graduates from every engineering college in Canada, pooling their knowledge and experience to maintain the traditions handed them by the pioneers of the electrical art. As new processes are developed and higher limits placed on the performance of electrical equipment, so does the Canadian Westinghouse Company provide manufacturing and testing facilities to meet the challenge of advancement.

While greatness of achievement and of service have been the privilege of this Company, yet work is constantly going forward to extend electricity into new fields, to improve present methods and to invest and perfect new merchandise and apparatus for home and industry.

Canadian Westinghouse Company Limited
HAMILTON - ONTARIO
Sales, Engineering Offices and Repair Shops in Principal Cities.



Westinghouse

Engineering Turns Night into Day

Advance in Lighting Meets Demands of Airport, Road, Modern Building

It is a far cry from the earliest attempts to find a satisfactory artificial light to the electric lamp of today. And the progress made in the past 10 years has been so rapid that there is good ground to expect that we are far from reaching the point of perfect lighting.

The first use of electrical energy for lighting was the old arc lamp which has now come to be far more an experiment in elementary physics than a practical source of light. It was not that the old arc did not give enough light, but that it was replaced by much more efficient methods.

Next great step was when Thomas A. Edison and his associates found a way to char a vegetable fibre, connect it to an electric circuit and place the filament in a glass bulb from which the air had been exhausted. This gave us the carbon filament lamp, a great improvement over the widely used candles or kerosene lamps of a few decades ago but still imperfect.

Tungsten Filament

About 30 years ago some enterprising experimenter discovered that a thin filament of tungsten could be placed in a glass bulb and produce a brilliant white heat glow when an electric current was passed through it. This made a lamp that lasted much longer, gave more light and used less current than the old carbon filament lamp.

Fluorescent Lamps

A lighting engineer today will tell you that the use of fluorescent lamps for lighting purposes is the most striking recent development. Still in its infancy these new lamps have certain advantages and other disadvantages.

In actual construction a fluorescent lamp looks like a glass tube one or one and a half inches in diameter and from 18 to 40 inches in length, fitted with electrical connections at both ends. Inside the tube is a small amount of mercury and a certain amount of a gas, usually argon. Passage of an electrical current through the tube causes the mercury to vaporize and give off a small amount of light and a lot more ultra violet rays.

Most people are at least vaguely familiar with the spectrum. An ordinary chart of the spectrum shows at the right the radio waves, then the so-called heat producing waves ranging through the infra-red waves that have become popularly known recently through such applications as photography to the small range of the spectrum that produces visible waves or light. To the left of the visible rays come the ultra-violet rays, the well-known X-rays and the more mysterious gamma and cosmic rays. A fluorescent lamp uses the ultra-violet rays but to make them visible it is necessary to coat the inside of the glass tube with a chemical that will fluoresce and give off light when the ultra-violet rays of the electrically charged, vaporized mercury hit it.

Thus fluorescent lighting requires the co-operation of the physicist and of the chemist who finds fluorescent materials that react most favorably to practical sources of radiation such as the tubes mentioned.

Store Displays

It is claimed that fluorescent lamps give two to three times more light for the same energy, considerably less heat than ordinary metal filament lamps and can very closely approximate natural daylight. Stores that have merchandise on display where color comparison is important find them invaluable. For display purposes, lights of different colors can be obtained by varying the chemical used to coat the inside of the tube. The small amount of heat given off is a decided advantage in refrigerated or air-conditioned rooms or display counters.

In their present stage of development, fluorescent lamps are not expected to replace ordinary sources. They have disadvantages that have not yet been overcome. For example, a special "auxiliary" is required and the lamps cannot be plugged directly into an ordinary lighting circuit. Cost is also a factor. An ordinary 15 watt fluorescent lamp itself may cost around $1.50 while the "auxiliary" needed would cost another $2.50. It gives at least twice as much light as a metal filament lamp.

Black Lighting

Rather closely related to the fluorescent lamp is the so-called "black light," designated a "tool of showmanship." "Black light" also uses the ultra-violet or invisible rays. Only in this case the object to be illuminated is painted with the fluorescent substance. When the lamp is turned on only the object coated with the fluorescent substance is lighted up. The effect is very striking and is being used in art galleries, lobby and poster displays and other decorative and display purposes. So far it has not been used to any extent in Canada.

Moving back again to the right of the visible section of the spectrum, lighting engineers have devised uses for the infra-red, or heat rays. Special lamps are in use that give off much more heat than ordinary lamps and a type of heat that is of special value for drying purposes. These lamps use gold-plated reflectors and have found wide use wherever lacquer paints need to be dried rapidly and efficiently.

Automobile companies are probably the largest single users of this type of lamp. Car bodies, after being sprayed with the paint, are passed through tunnels lined with these special drying lamps in their gold-plated reflectors. The newly completed body plant of the Ford Motor Co. of Canada at Windsor is an example of a large installation of these drying lamps.

Standards of Illumination

From the standpoint of the average person, the greatest advance in lighting in recent years is the growing recognition that previously accepted standards of illumination were hopelessly inadequate and a menace to eyesight. Five or six years ago an office illuminating system that gave a general level of 10-foot candles was thought rather good. Today 20-foot candles is the accepted standard with the probability that 30 or 40-foot candles will be used within a few years.

In everyday domestic and office lighting the rapidly growing use of indirect and semi-indirect lighting is the most noticeable change of the past few years. The year 1933 saw the start of what is termed the "better light, better sight" movement and birth of what engineers term "light conditioning." This campaign has featured more powerful lights, using better and more efficient fixtures. In indirect lighting it is the ceilings and walls of the room that serve as reflectors, giving a more evenly diffused light. Usually it requires wall and ceiling finishes designed to aid the reflecting and more powerful lights.

Or the installation may use semi-indirect lighting where perhaps 15% of the light given off by the lamp comes directly downward and the balance is indirect.

School Standards

The Illuminating Engineering Society has worked out standards of lighting requirements for various needs. For example, the accepted efficient standard for school lighting is six units of 500 watts each for the average room. This standard is being rapidly adopted by Canadian schools with more noteworthy progress being made by the smaller centres. Toronto schools, for example, are considered by illuminating engineers to be far behind the times and outpaced by many smaller centres.

In the Granby, Que., high school, which has adopted the society's standard, each room has a device that automatically turns on the inner rows of lights whenever the natural daylight drops below the desired standard on a cloudy day. Other examples of up-to-date school lighting can be found at Simcoe, Woodstock, Sarnia, St. Thomas and other centres in Ontario and Noranda and others in Quebec.

Street lighting in Canadian cities and towns has been the subject of much criticism as a result of the steady increase in accidents. Again probably the worst offenders are the largest cities. The Ontario town of Orillia is an example of modern lighting. Here a new type of 1,000 watt bipost lamp has replaced the ordinary 500 watt. The bipost lamp is attached directly to buildings, eliminating the post problem. Winnipeg, Truro, Clinton, Goderich and Valcartier Camp are other examples of the trend to better street lighting.

The Sodium Lamp

Also a product of the period since 1933 are the practical sodium and mercury gaseous conductor lamps. These lamps do not contain the ordinary type of filament but small amounts of either sodium or mercury through which the electric current passes. They have an efficiency of two or two and a half times that of the ordinary metal filament lamps. The city of Lachine, Que., is trying out a combination of mercury and incandescent lamp for street lighting. Largest single installation of sodium lamps in Canada is the 62 100,000 lumen units installed on the Patullo Bridge in British Columbia.

Highway lighting in Canada, as elsewhere, is receiving the attention of engineers who are trying to make their roads safer. So far, however, actual highway lighting installations in this country are experimental. The Curé Labelle Highway in Quebec has 1½ miles of sodium lights and another mile of incandescent lighting. The Queen Elizabeth Way, between Toronto and Hamilton, is being made the experimental ground for highway lighting in Ontario.

Airport lighting used to be largely a system of floodlighting. Today the modern airports used by the Trans-Canada Airways planes are merely lighted along their boundaries, to mark the runways and for lighting of obstructions. A new type of flush mounted contact light is being used to mark runways of these airports. An adaptation of practice in the United States, these lights are being made in Canada for Canadian use.

LIGHT AND POWER

Niagara Falls illustrates two major contributions of Canadian engineering to light and power. The falls itself is the largest single source of hydro-electric power which has been such a great contributor to Canada's industrial development, while the nightly illumination of the falls may be considered symbolic of the rapidly growing use of electric light for display and merchandising purposes.

Oil Refining Advances

Petroleum refining is an industry which is greatly subject to technological obsolescence. New processes are continually being developed which may make out-of-date millions of dollars worth of plant investment.

Canadian oil refiners, however, have been alive to this situation. New refineries are being built and improvements made to existing plants as need arises. The past two years have seen successive new peaks reached in production of gasoline which is by far the most important single product.

Two years ago there were 44 petroleum refineries operated in Canada with a combined capacity of 168,220 bbls. daily. Quebec with 40.7% of this total leads the provinces, followed by Ontario with 24.1% and British Columbia with 11.6%. Saskatchewan's 17 refineries accounted for another 9.6% while Nova Scotia's single plant produced 6.6%.

Already this year one completely new 5,000 bbl. a day refinery has started operations. This is the Calgary plant of British American Oil Co., built at a cost of over $1 million. This new unit will actually replace a 2,500 bbl. refinery at Coutts, Alta., and the smaller Bell refinery in Calgary.

Also in Calgary, Imperial Oil is building a new refinery to supplement the plant it already has in that city. This new unit, to be ready for operation in January, 1940, is estimated to cost in the neighborhood of $1.5 million and will be a complete unit, embodying newly developed designs.

Imperial Oil had completed extensive alterations and extensions to its Regina refinery by June of this year at a cost of around $300,000 and is planning to spend around $300,000 on the farthest north refinery in Canada at Fort Norman in the North West Territories.

Airport Construction

A new site has been purchased by the city of London and work is starting on a T. C. A. airport for this city. An additional range finder is being installed 20 miles north of Treston, which will allow planes to shorten the Ottawa-Toronto route.

The following comparison of airport construction in Canada and the United States has been supplied by the Department of Transport and shows the difference in costs between the two countries. It is estimated incidentally that maintenance costs on Canada's airport chain will be lower than in the United States despite frost hazards and other adverse climatic conditions.

	U.S.A.	Canada
Total expenditure	$350,000,000	
Federal		$10,000,000
Provincial, municipal and private		6,000,000
		$16,000,000
Number of airports	2,174	123
Airports with runways 2,500 to 4,500 ft.	38	20
Airports with runways 2,500 to 3,500 ft.	178	40
Airports with runways 1,500 to 2,500 ft.	1,960	62
Night flying equipment	230	38
Paved runways	825	50

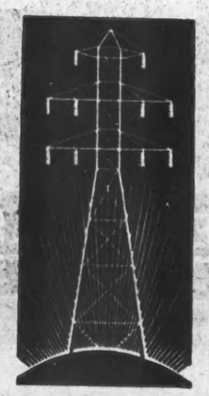
Streamlining THE ELECTRICAL WORLD OF TOMORROW

THE "ALL-SEEING EYE" OF THE FUTURE: *Fresh from the laboratories of electrical research comes news of a revolutionary 1,000,000-volt X-Ray machine, shown here during assembly. It will help doctors cure disease; and let metal workers "look through" steel castings five inches and more thick.*

IN the research laboratories of the electrical industry—"houses of magic" to the uninitiated—the mathematician, the practical experimenter and the world-renowned scientist are turning the dreams of yesterday into today's realities. With skilled hands and fertile brains, heart-and-soul devoted to their tasks, they are shaping the electrical world of tomorrow . . . a "streamlined" world of better living and better homes—of better factories, better working conditions and better business.

To the pioneering genius of the laboratory scientist, The Hydro-Electric Power Commission of Ontario adds the trail-blazing achievements of its own engineers and technicians. What these achievements are everybody can see in the conquest Hydro has made of Ontario's wilderness of rock and lakes and forest. Farms and mines once far remote have been brought within the vast network of Hydro power lines which serves the city home and factory. Overcoming problems of generation, transmission and distribution unique in all the world, Hydro engineers have marvellously "stepped-up" the electrification of the province, while stepping-down the cost of power to all classes.

Their work is still going on. And as nature's barriers are steadily battered down, the use of Hydro power steadily goes up. As the use increases, the cost decreases. Thus Hydro is making its contribution to the better, lower-cost living that will be the standard of the electrical world of tomorrow. *You* can hasten the coming of these benefits by using Hydro power to the full in your home and factory of today . . . by modernizing now to meet the needs of tomorrow.



THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

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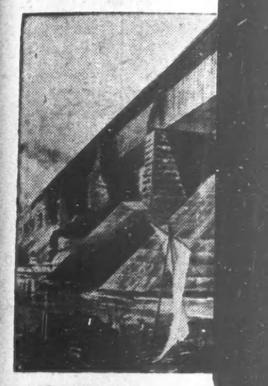

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The Engineer Has Given Us Modern Bridges

Canadian Spans Are Rated Among World's Greatest Achievements

Bridge building commands a unique place in the annals of Canadian engineering. The development of transportation services, building of communities, and the constant extension of highway systems, has given to Canada a series of bridges which rank as first rate engineering achievements.

The spanning of a fast-flowing river, a deep ravine, a canal, and even a harbor represents but one stage in man's desire to "push on" and the problems involved bring out all the ingenuity and resourcefulness of the bridge builder.

Because of the great distances in Canada, the many rivers and lakes, the growth of cities, and the creation of a rail and highway transportation system that has few equals in the world. Canada has thousands of bridges. Some are small, some are big and not a few represent new engineering standards when they were built. Records of boldness, ingenuity and originality unsurpassed in any other country have been established in bridge work done within the Dominion.

Timber on masonry, steel and then concrete have taken their successive places in Canada's bridge building annals. All three types of bridge work are being constructed today, though steel is now the principal material. Unlike Europe, Canada however, has never made use of the masonry arch type of superstructure.

The record of bridge building in Canada shows that engineers here, as elsewhere, have learned from long, and sometimes bitter, experience the need for adequate exploration of materials upon which substructures are to rest and the most suitable methods of construction.

During the pioneer stage of bridge building in Canada it was natural to construct substructures by the driving of pile bents. Piles continue to serve an important role, but in the last 25 years there has been increasing disposition to use concrete piles in various forms driven in the same way as wooden piles.

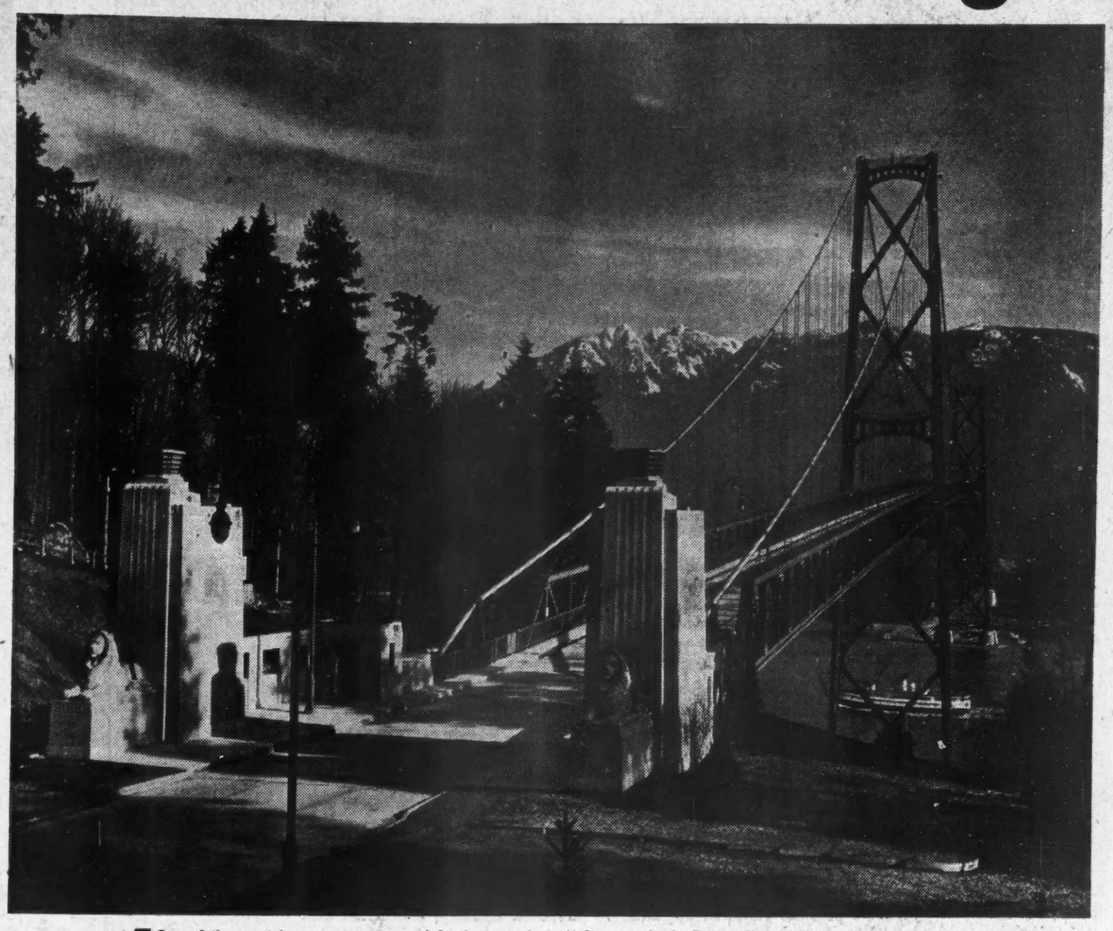
Reinforced concrete, open caissons with removable bottoms were successfully employed in the construction of the foundations of the Welland ship canal bridges. The caisson was landed on the cut-off piles by flotation, the timber bottoms were removed and the caisson then partly filled with concrete placed underwater. It was then unwatered and the remainder of the concrete placed in the dry.

Increased certainty and safety in manipulating pneumatic caissons has developed in Canada in the last two or three decades. In the pneumatic caisson work for the Quebec Bridge, in which the caissons were carried down to a depth of over 100 feet below high water level, there were no lives lost and only a few cases of illness resulting from working under air pressure.

It may not be generally known that considerable use of timber for bridge superstructures still persists in Canada. In Quebec covered timber bridges are still being built.

Rather remarkably, the government of New Brunswick found, in 1919, that the neglect of maintenance of steel bridges was playing such havoc with them that it reverted to wooden superstructures for spans up to 180 feet.

With the comparatively recent development of timber connectors, the application of timber to important bridge construction has revived. An instance of this is seen in the 210 foot span of the Sioux Narrows Bridge, Ont.

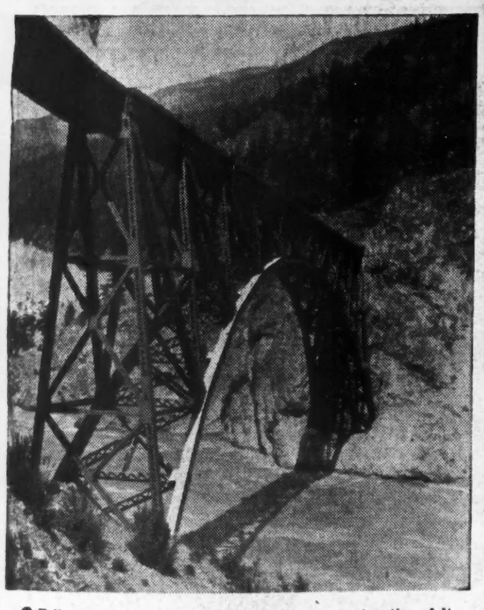


5 One of the most important, and certainly the most beautiful bridge, to be completed in recent years is the newly opened Lions Gate Bridge at Vancouver which has the largest suspended span in the British Empire. It has a total length of 2,778 feet, consisting of 1,550 foot main span and two equal side spans of 614 feet and has a minimum clearance of 200 feet above high water.

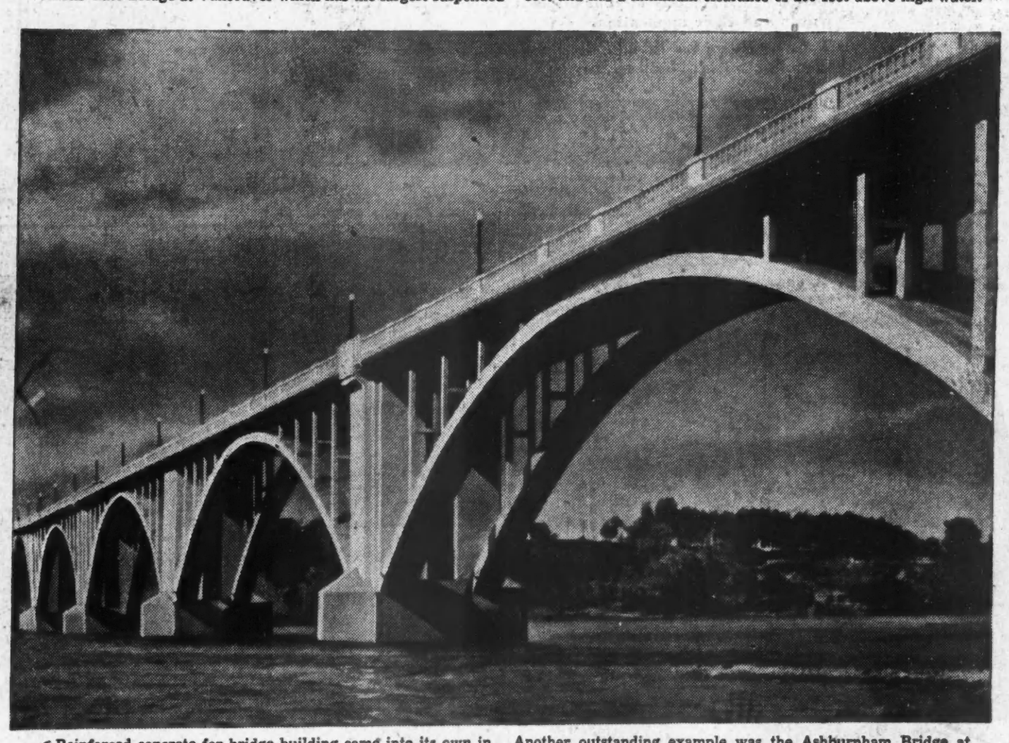
2 The first bridges in this country were built of the material that was closest at hand—timber. Stone masonry was used for piers and abutments. With these materials Canadian engineers in 1854 crossed the St. Lawrence at Montreal Island with the old covered Victoria bridge. Its 25 tubular spans stretched a total distance of 6,522 feet. It is a tribute to this early engineering that the substructure of the old bridge was simply extended in 1898 to support the then modern steel spans.

Typical of the covered timber bridge era is the New Brunswick structure shown in the circle above. Like a hundred others of this type in the eastern Canadian provinces it is still standing and still in use.

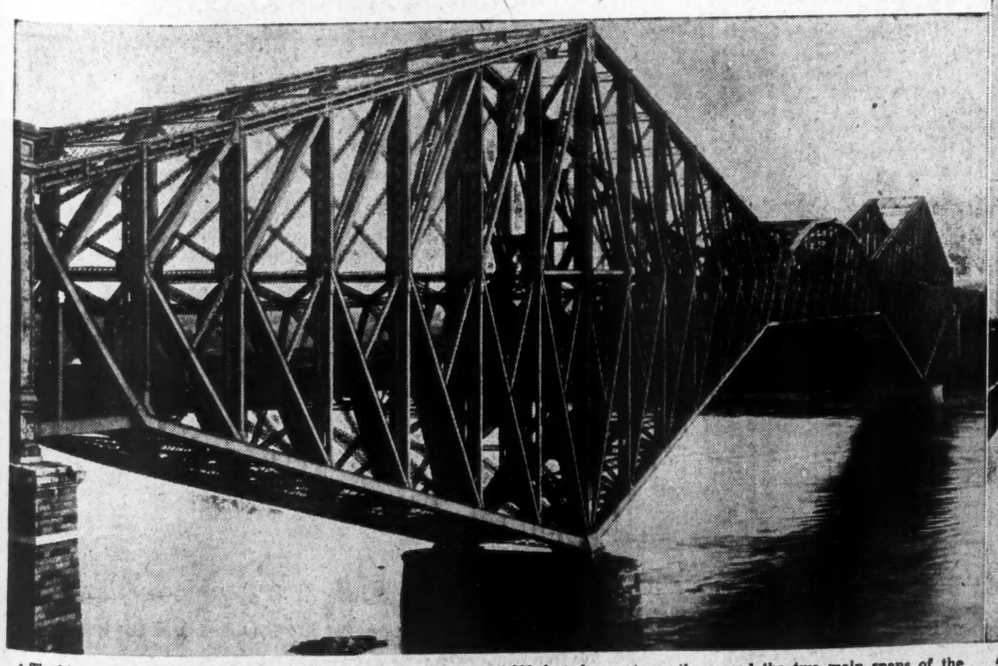
The composite photograph of the old Victoria bridge above was one of the first industrial photographs made in Canada. It is dated 1878 and is reproduced from the historical collection of William Notman and Sons, Montreal.



3 Following timber came steel. Railway construction felt the benefit, particularly in British Columbia. This C.N.R. bridge spans the Fraser River. *C. N. R. photo.*



6 Reinforced concrete for bridge building came into its own in major projects during the war. It was used over the South Saskatchewan River on the 10 spandrel University Bridge in 1916. About the same time the Centre Street bridge in Calgary was completed, a double skew structure with three 150 foot spans. Another outstanding example was the Ashburnham Bridge at Peterborough with a clear span of 234 feet. On the Pope Pius bridge over the Back river at Montreal shown here, steel has been used for the arches and made to blend with concrete in piers abutments and superstructure.



4 The high watermark of achievement in cantilever bridge construction for Canada, as for the whole world, was reached with the completion of the Quebec Bridge in 1907. This bridge spans the St. Lawrence River just above Quebec. Its central span, 1,800 feet does not greatly exceed the two main spans of the Forth Bridge, the live load for which it was 2¼ times that for the older structure. The suspended span, 640 feet in length, continues to hold the record for Canada for a simple truss span.

7 The most modern of the large cantilever bridges in Canada is the Jacques Cartier bridge between Montreal and the South Shore, completed in 1929. It has a central span of 1,097 feet and is fully rivetted, except at the top and bottom of the main vertical posts over the piers. This bridge, on which nearly $30 millions was spent, is one of the most massive and imposing structures in the country.

*Another Leading Industrial Concern**

SAVES MONEY ON PAINT

by calling in a SHERWIN-WILLIAMS PAINT ENGINEER

**Name on request*

For years a prominent Canadian company had experienced paint trouble in one section of the plant interior. Year after year, paint applied to steelwork in October completely disintegrated by the following Spring, leaving the surface again fully exposed. Adverse conditions included heavy moisture condensation, chemical fumes and heat.

It was finally decided to consult a Sherwin-Williams paint engineer. After a study of the conditions, he recommended a special finish which was subsequently applied. This first application, made over 18 months ago, is still in excellent condition, providing full protection to the surface of the steelwork.

The Sherwin-Williams paint engineer is definitely saving this company money on paint!

Sherwin-Williams have specialized in the development and manufacture of paints, and paints only, for over 73 years. You can be sure that any finish recommended by the Sherwin-Williams paint engineer will give you the greatest possible value in appearance, improved lighting, sanitation and long life.

The Sherwin-Williams Company maintains an organized industrial advisory service which is freely at your disposal for consultation on all questions of paints and their application.

Write or phone Industrial Sales Dept., The Sherwin-Williams Company of Canada Limited, Montreal, or your nearest Sherwin-Williams office.

SHERWIN-WILLIAMS PAINTS

TRUE ECONOMY in BUILDING

It is more important to have a construction job carried out thoroughly and soundly, with consequent assurance against dissatisfaction and loss, than it is to drive a bargain.

It is an Anglin-Norcross principle to achieve the lowest possible estimate consistent with complete efficiency in the carrying out of the contract. The highest standards, together with organization and experience, are essential to this result. The acceptance of an Anglin-Norcross quotation may save you thousands of dollars in the long run.

A contract placed with this firm ensures its speedy, economical and thoroughly efficient execution from start to finish — to the owner's satisfaction and the fullest protection of his pocketbook.

It is such efficiency which constitutes TRUE ECONOMY in building.

And the Time to Build is NOW!

Building materials (wholesale) prices in Canada are 10.9% lower than in 1926.

Average cost of construction for Canada is 7.9% lower than in 1926.

The 8% sales tax on the majority of building materials has been removed.

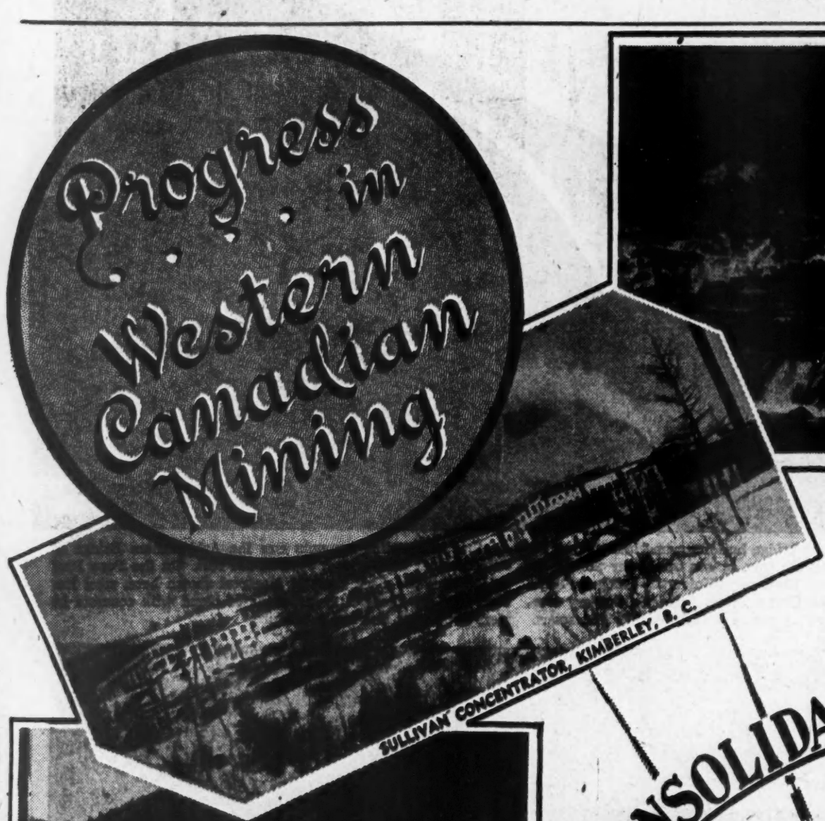
10% of CONSTRUCTION EXPENDITURE for the period May, 1939 to April, 1940, IS DEDUCTIBLE FROM INCOME TAX during the first three taxable fiscal periods occurring within the first six fiscal periods ending on or after April 30, 1940.

ANGLIN-NORCROSS

CORPORATION • LIMITED

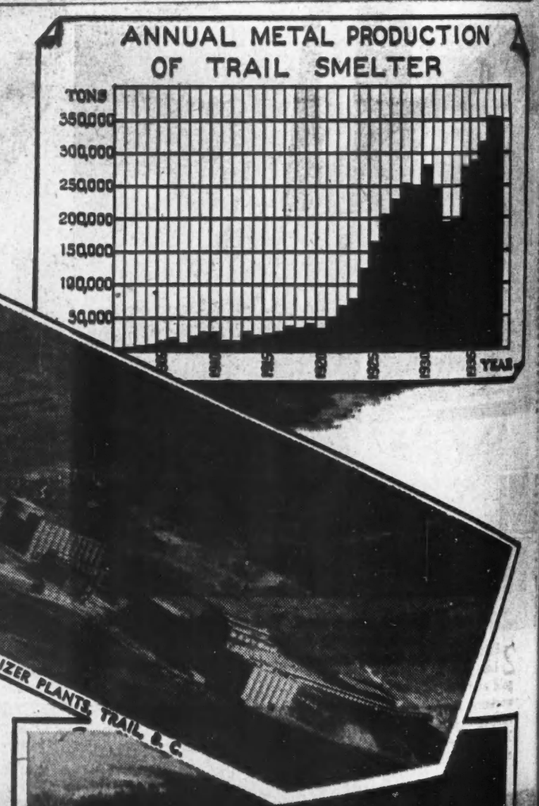
Montreal Toronto Kirkland Lake

Progress in Western Canadian Mining



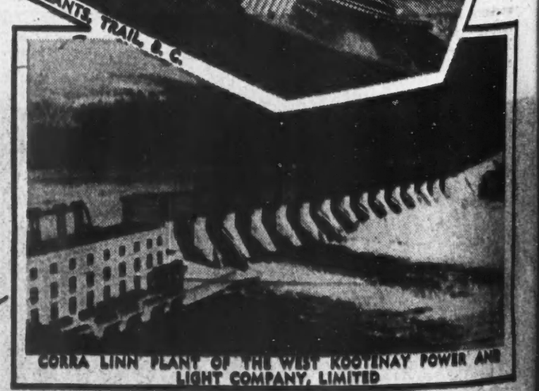
SULLIVAN CONCENTRATOR, KIMBERLEY, B. C.

TRAIL SMELTER TODAY



CHEMICAL and FERTILIZER PLANTS, TRAIL, B. C.

SULLIVAN MINE, KIMBERLEY, B. C.



CORRA LINN PLANT OF THE WEST KOOTENAY POWER AND LIGHT COMPANY, LIMITED

The

CONSOLIDATED MINING & SMELTING COMPANY OF CANADA LIMITED

TRAIL, B.C.

TRAIL SMELTER IN THE LATE '90s

TADANAC Brand METALS, ELEPHANT Brand CHEMICALS and CHEMICAL FERTILIZERS

produced by

THE CONSOLIDATED MINING & SMELTING COMPANY OF CANADA LIMITED

have contributed extensively to Canadian Industry and Canada's Domestic and Foreign Trade. Value of metal production in 1938 amounted to more than $27,000,000. During the past five years this Company has expended approximately $46,000,000 for wages and salaries, and $25,000,000 for railway freight.

1938 METAL, CHEMICAL and CHEMICAL FERTILIZER PRODUCTION

Lead	201,374 tons	Zinc	149,071 tons
Gold	56,991 ozs.	Silver	9,815,484 ozs.
Copper	850 tons	Cadmium	255 tons
Sulphuric Acid	134,468 tons	Sulphur	29,163 tons
	Chemical Fertilizers	140,944 tons	

The SULLIVAN MINE at Kimberley produced 2,278,000 tons of ore in 1938 bringing the total production of this famous mine to 26,490,000 tons since its original development. The hydro electric plants of the West Kootenay Power & Light Co. on the Kootenay river generated more than 1200 million Kilowatt hours during 1938, the major portion of which was consumed in metal and chemical fertilizer production.

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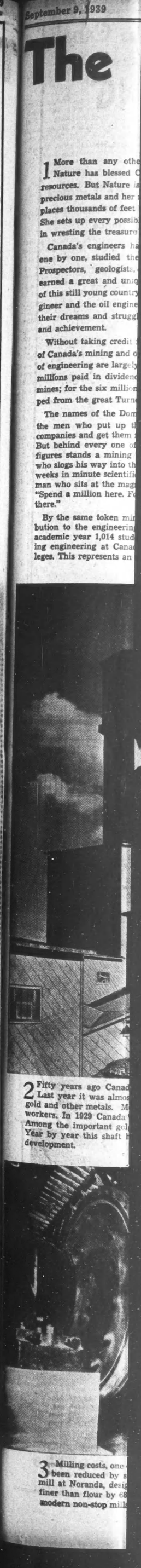

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The Engineer Has Given Us Minerals, Oil

Engineering Has Pried Open the Door To Vast Cache of Underground Wealth

More than any other country in the world Nature has blessed Canada with vast mineral resources. But Nature is a miser. She hoards her precious metals and her reservoirs of oil in hidden places thousands of feet below the earth's surface. She sets up every possible obstacle to hinder man in wresting the treasure from her.

Canada's engineers have faced these obstacles one by one, studied them and overcome them. Prospectors, geologists, mine promoters have earned a great and unique place among pioneers of this still young country. But it is the mining engineer and the oil engineer who have transformed their dreams and struggles into industrial wealth and achievement.

Without taking credit from these other builders of Canada's mining and oil industries the triumphs of engineering are largely responsible for the $93.8 millions paid in dividends last year by Canadian mines; for the six million barrels of crude oil tapped from the great Turner Valley reservoir.

The names of the Dominion's mining magnates, the men who put up the money, who organize companies and get them financed, are well known. But behind every one of these dynamic, creative figures stands a mining engineer. He is the man who slogs his way into the wilderness, who spends weeks in minute scientific examinations. He is the man who sits at the magnate's elbow and advises: "Spend a million here. Forget the million you lost there."

By the same token mining has made its contribution to the engineering profession. In the past academic year 1,014 students were studying mining engineering at Canada's six professional colleges. This represents an increase of 26% over the enrolment of two years ago and a new peak in numbers.

This year Canadian mining colleges reported 203 graduates all with good prospects of employment. In 1938, 103 of 131 graduates were absorbed immediately in the mineral industry.

The reason is easy to find. The prospector may discover the mine. It is the engineer who makes it pay. Engineering skill has revolutionized drilling, developed new explosives and blasting methods, reduced underground hazards by new types of ventilation and new protections against cave-ins. Engineering has produced new and more economical methods of milling, cutting, grinding processes to the minimum. Engineering has given Canada up to date smelting plants in which waste has been virtually eliminated.

Rule of thumb methods have produced profits where ore is extraordinarily rich, where ore is easy to extract. But it is the engineer who, with his cost-paring skill, has been able to make mines out of very low grade ores, add years of life to the richest properties, make Canadian mining a giant, long-lived, sound industry.

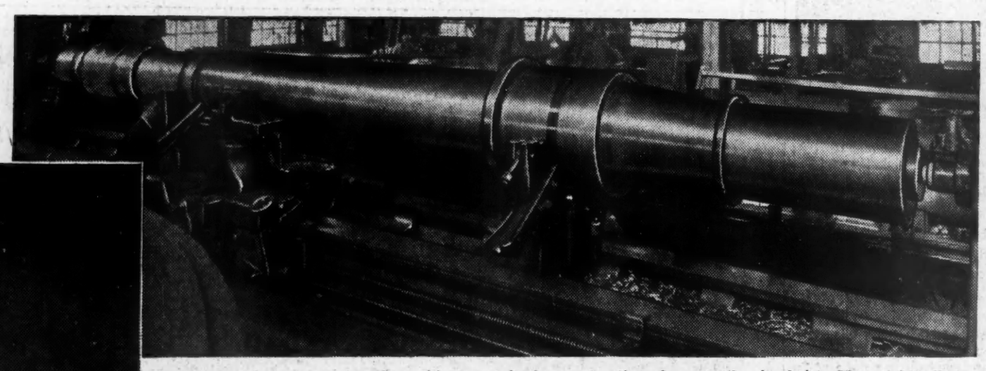
Nowhere is the contribution of engineering more dramatically shown in the rapid exploitation of the crude oil reserves of Turner Valley. Turner Valley proved to be one of the most difficult places in the world for oil well drilling because of the hardness of the underlying rocks and the angle at which they lie. Very deep drilling, also, was necessary. With the modern machinery and methods and aided by highly trained specialists in acidization and other technical phases, oil engineers have created one of the largest crude oil fields of the British Empire.

Most significant phase of current work in the Canadian west is the search for new oil fields which will boost oil reserves and, if large enough, make pipe-line construction to the eastern market only a matter of time. Again engineering will play its part.

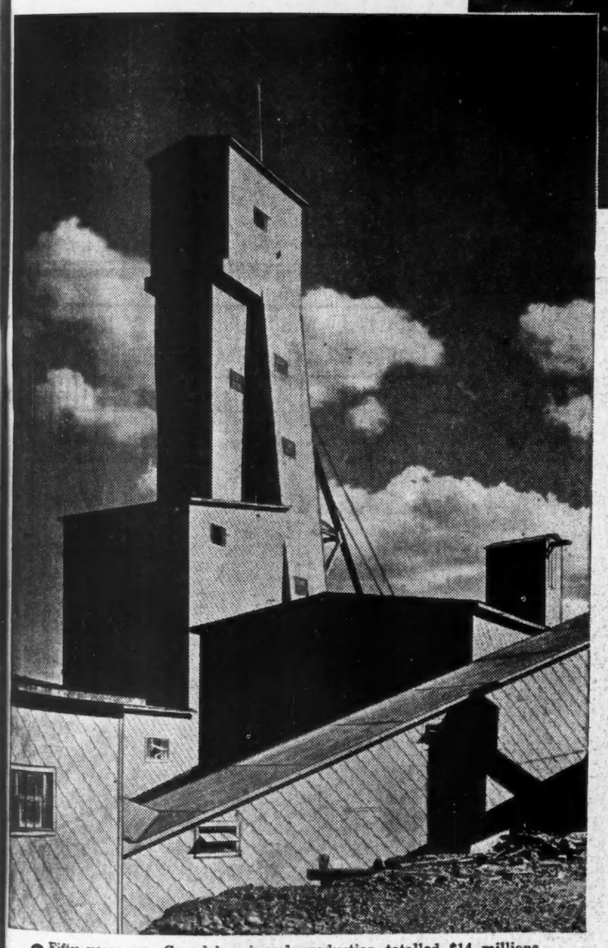
Although perhaps not fully appreciated, resources of engineering talent built up by Canada's mining industry form one of the country's greatest assets even if no exact value in dollars and cents can be placed upon it. Canadian engineers know Canadian conditions and many times this has proved of utmost importance. Outside engineers have been handicapped through lack of knowledge and have often considered that such practices as cutting high values and allowing for dilution were not necessary. Mistakes have been made which our own engineers would have avoided.

Hard rock mining in Canada started in Cobalt and it was no mere chance that Cobalt men and capital were prominent in the development of other mining camps, such as Porcupine, Kirkland Lake and Rouyn. One of the greatest romances in the annals of Canadian mining is the use of silver profits from the La Rose mine in Cobalt to finance Hollinger. Later Hollinger was to finance Noranda Mines through a bond issue. Many stories along the same line could be mentioned. Behind them all have been shrewd judgment and good technical practices.

7 Experienced mining companies say they are satisfied if they get one winner out of ten tries. Here the job of the assayer plays a vital part. But where the assay of yesterday meant a dud mine the assay of today may mean a low grade proposition which the engineer has placed in the ranks of profitable operation.

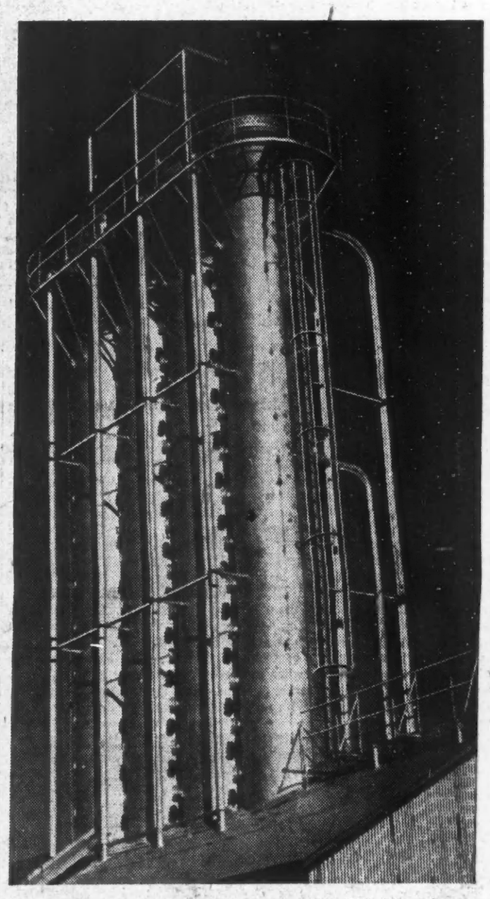


4 A major engineering achievement is the construction of mammoth mine hoists. This shaft built by Canadian Allis-Chalmers Ltd. is part of Canada's largest hoist at the Creighton Mine of International Nickel Co. It winds three quarters of a mile of cable and hoists 4,000 tons of nickel copper ore per day. *Editorial Services Ltd.*

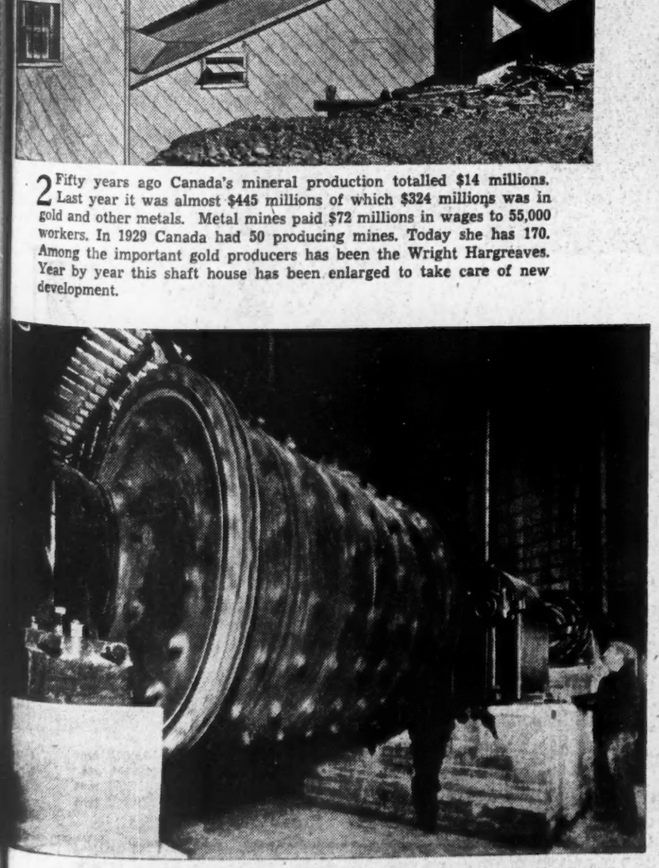


2 Fifty years ago Canada's mineral production totalled $14 millions. Last year it was almost $445 millions of which $324 millions was in gold and other metals. Metal mines paid $72 millions in wages to 55,000 workers. In 1929 Canada had 50 producing mines. Today she has 170. Among the important gold producers has been the Wright Hargreaves. Year by year this shaft house has been enlarged to take care of new development.

5 Modernized open pit operations are a comparatively new development in Canadian mining and are making a valuable contribution to Canada's mineral production. Here again engineering has played a major part. Churn drills mounted on t actor wheels have solved the intricate problem of blasting the ore. Electric shovels have made operation of the open pit economically possible.

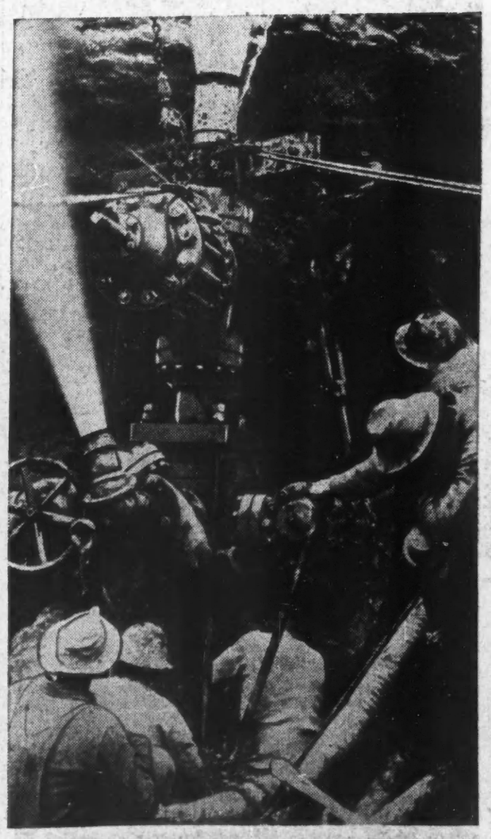


8 From 320,000 barrels of crude oil in 1936 Alberta's production went to almost two million barrels in 1937 and around six million in 1938. Here engineering has made its contribution both in production and refining.



3 Milling costs, one of the great obstacles to profitable production, have been reduced by simplifying ore grinding units. In this typical ball mill at Noranda, designed by Dominion Engineering Ltd., or is crushed finer than flour by 68,000 pounds of balls. Continuous feeding of these modern non-stop mills is a triumph of engineering. *Dom. Engineering photo.*

6 The word Nickel is reported to have been derived from the ancient miner's "old nick" dating back to the days when this silvery metal was regarded as a nuisance by men concentrating their efforts on recovery of copper. Last year Canada produced $53.9 millions in nickel. Into the great pots used the separating plant of the Copper Cliff smelter molten copper nickel is poured and separates as it cools. *Associated Screen News photo.*



9 Seven thousand feet of drill pipe is the usual requirement for drilling in Turner Valley. When oil is finally struck this valve control device known as a Christmas tree is fitted over the top of the casing to harness the wild burst of gas and oil. *Imperial Oil photo.*

Mining Engineers Corner Costs

New Methods Increase Profits Extend Canada's Mining Field

Despite the fundamental place of the prospector, the promoter, the financier and the speculator in mining development, a vast amount of the credit for Canada's extraordinary mining growth goes to the trained men who know how to make mines pay.

Associated with the mining engineer and vital to the general achievement are other engineers, other specialists.

Engineers are designing new mining and milling machinery, more efficient, longer lived, cheaper, doing jobs that not long ago were believed impossible.

Engineers in explosives have revolutionized the blasting of rock. Their skill and research has developed explosives that save lives; that are very safe to handle; that leave a minimum of noxious gases behind after detonation; that resist heat and cold and moisture; that tear off mountains of rock.

The engineers are making mining one of the safest of industrial occupations through persistent watchfulness and well planned educational courses for mine workers.

Comparative newcomer to the mining field in Canada is the ventilation engineer. Once again skill, experience and research are serving human welfare, making mines healthier, more agreeable to body and mind—and producing profits.

New Drilling Methods

The last few years have seen drastic changes in the methods of digging wealth from Canada's underground treasure house. For the most part innovations have had economy as their primary goal. Labor saving, speed and safety have been necessary stepping stones.

Pioneered by Noranda, new drilling methods are being watched with great interest, wherever ore deposits admit giant stoping operation. Compared with the ordinary short drilling, Noranda is using diamond drills for holes up to 70 ft. These are loaded and gigantic slices are blasted off the wall of the stope at the rate of about one a week. Following considerable research by explosive experts original difficulties with regard to loading such deep holes are understood to have been overcome and important reductions in costs are credited to this procedure.

Detachable bits for drill steel are proving increasingly popular. Developed over the past few years and brought to a high state of performance by further refinement many mines find that the detachable bit gives greater flexibility hence economy in drilling operations.

Mechanical Muckers

Mechanical muckers have achieved popularity in the past year or so. These midget "steam" shovels, powered by compressed air are now in use at a great many properties and are increasing in popularity. It is stated that operations like drifting are much speedier because of the reported 50% reduction in drilling delay while mucking is in progress.

Important possibilities for control of and perhaps prevention of silicosis are indicated by recent research, by mining men in co-operation with the medical profession, in the use of aluminum dust.

Guniting roofs is a growing safety practice. This process tightens up rocks in roofs and walls, reduces scaling and in some cases timbering costs as well as adding to the safety factor, hence potentially lowering Workmen's Compensation charges.

Engineer as Prospector

But the sphere of the mining engineer is broadening. More and more it is engineers who are doing the prospecting. Both Dominion and Provincial Governments now have highly trained staffs combing the pre-Cambrian for favorable looking ground, making special surveys for mining possibilities. The prospector with a nose for gold and inveterate hope tragically finds it hard now to get a grubstake. He needs more money to travel far into the hinterland to prospect in untried areas. In the great mining belts nearly all the ground is staked. What is left unstaked is usually deeply overlaid with overburden which leaves the man with a grub hoe almost helpless and demands the service of the geophysicist or the diamond drill.

Growth of big mining companies who can afford big engineering staffs has also meant putting more of the prospecting task on the engineer. The enormous costs of prospecting where there are none or very few rock outcroppings pointing the way underground and the enormous costs of proving up an ore body of sufficient size to justify mill construction have created a situation in which the costs of getting the most highly skilled men available are insignificant compared with the sums at stake.

In this field the work of the mining engineer has just begun.

Western Fields

British Columbia, Canada's pioneer mining province, has its great Bridge River, Sheep Creek, Zeballos gold camps, its vast base metal industry Consolidated Mining and Smelting centred at the border town of Trail, with the largest lead mine in the world, Sullivan.

Hudson Bay Mining and Smelting straddles the Saskatchewan-Manitoba border far to the north. Nova Scotia has its producers and prospects. In the North West Territories is Eldorado, the gold and radium property, the new 1,000-ton producer, the Box property of Consolidated Smelters, the Negus and the score of interesting prospects in the Yellowknife, Gordon Lake and other areas.

In central Canada, mines don't pay attention to provincial boundaries and it is along four mineral belts in three provinces that the great proportion of Canadian mineral production is to be found; where about $140 millions of last year's $166 millions of gold was produced.

These four mineral belts are well defined geologically. A glance at the map convinces the layman that they exist. But look at the tremendous gaps all along each of them; the vast areas that so far have had little real test for mineralization. Who now can say that somewhere along these belts, buried deep underneath the overburden that makes exploration difficult and expensive in many places, there are not new Hollingers, Lake Shores or Pickle Crows waiting to be developed.

Canada's Rand

Look at the Kirkland Lake to Noranda belt, stretching from Matachewan camp in the west through Kirkland Lake, Larder Lake, Rouyn, Cadillac, Malartic, Bourlamaque and Pascalis. It has a productive record of $537 millions since the first mine in the string Toburn went into production in 1913. The belt has paid $185 millions in dividends.

Look at the growing centres of commercial and community life along that belt. Kirkland Lake is a small city. Larder Lake, a cluster of houses with hardly a dozen citizens only a few years ago is a bustling town of a couple of thousand. Virginiatown, the community at Kerr Addison and Kearns, the community at Chesterville are brand new towns, growing rapidly. Then there are the twin towns of Rouyn and Noranda, the latter a model community planned by Noranda mines, several communities in the Cadillac camp, the booming village of Malartic and the model village Bourlamaque with its pioneer partner Val d'Or.

Porcupine is the second most productive belt, stretching, geologically, some 120 miles from west of the city of Timmins, through Shumacker and South Porcupine out into Quebec province to and beyond the Beattie mine. Since its pioneer producers, Dome and Hollinger, began producing in 1910, Porcupine has produced almost $535 millions in gold and paid over $235 millions in dividends.

Third is the Manitoba-Patricia belt stretching from San Antonio in Manitoba province through the Red Lake camp, through Uchi out to Pickle Crow. The first producer on this belt was Central Manitoba (1928). Since then the belt has produced $41 millions in gold, paid over $7½ millions in dividends.

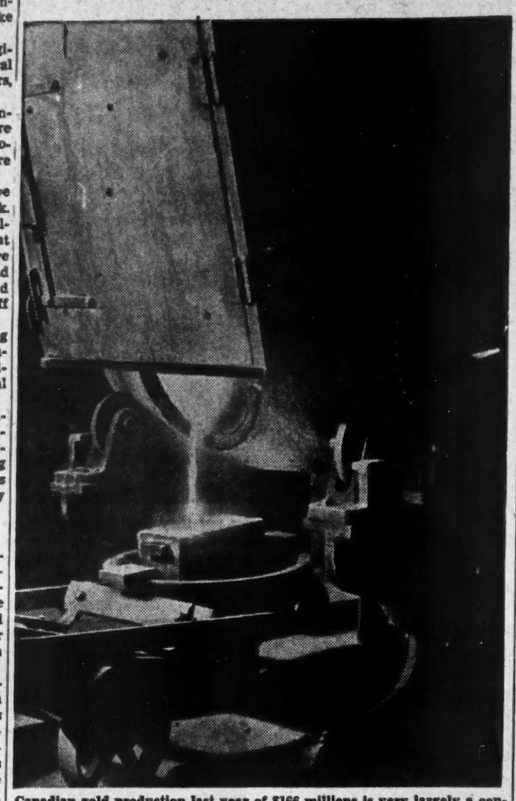
Little Long Lac belt is the youngest. Its oldest mines, St. Anthony and Northern Empire, went into production in 1934. Already it has produced $17.5 millions and paid $2.4 millions in dividends.

Every one of these geological belts challenges the engineer. Every one is a monument to what he has already achieved.

Making Mines Pay

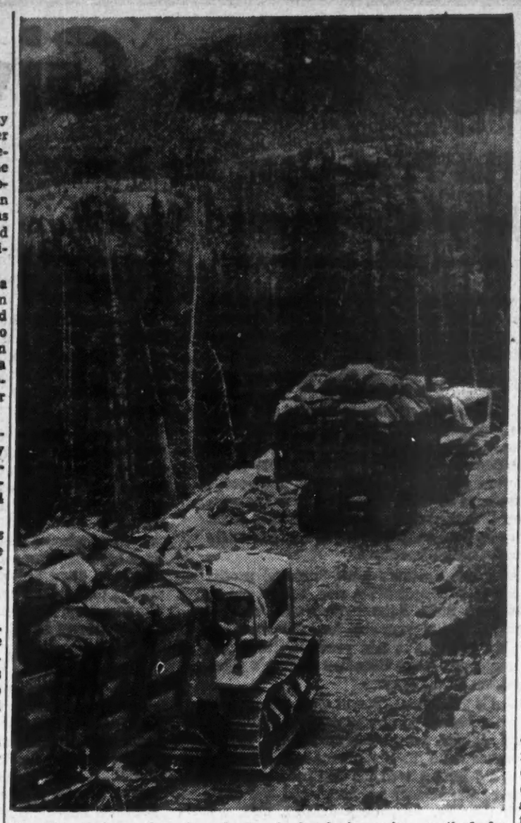
An engineer can't make a mine. But if he gets a mine, he can make it produce the dividends. Sometimes he is wrong. Sometimes, his advice is not taken and he has to ride along, make the best of it, and see if his bosses were right.

But at the back of every successful mine in Canada, behind every dollar of profit, behind the industry which has done so much to make Canada rich and protect her from the hardships of the depression, stands the integrity, the knowledge and the skill of Canada's 20th century pioneer, the mining engineer.



Canadian gold production last year of $166 millions is very largely a contribution of the mining engineer to the national income. From the first extraction of the ore to this final step, the pouring of the brick, the engineer has reduced production costs and made possible profitable development of lower grade deposits.

The mining stope of today is an underground factory equipped with every product of engineering ingenuity in the shape of machinery for the cheap and speedy production of ore.



Canadian engineers have been leaders in developing unique methods for pushing back frontiers and in wresting riches from the tenacious grasp of nature. Tractors, or "cats" as they are known to the mining man, are seen above hauling heavy loads to a remote British Columbia mining operation.

Welland Ship Canal

Many Engineering Records in Canada's Greatest Canal

The Humberstone Guard Lock of the Welland ship canal, 1,380 feet between hollow quoins of inner gates, is the longest lock in the world.

The lift of 46½ feet of each of the main locks of the ship canal is the highest of any existing lock of the mitre gate type.

Each of the main filling and emptying culverts of the lift locks has an area of 210 square feet and could easily accommodate the largest motor passenger bus on the highways.

The lock wall between twin Locks 4 and 5 is over 130 feet high, or about the height of a 10-story building.

Water for lockage at Flight Locks 4, 5 and 6 is supplied from a basin formed by the construction of an embankment 3,500 feet long and having a maximum height of 80½ feet. The basin has an area of 84 acres.

The six 22-foot syphon tubes carrying the Chippawa Creek under the ship canal at Welland are each large enough to accommodate the largest railway locomotive at present in service. The spring freshet flow of Chippawa Creek at this point has been as high as 28,800,000 cubic feet per hour.

The Port Colborne Breakwater extension, 2,000 feet long, was formed by sinking reinforced concrete cribs on a prepared bottom and covering them with a heavy concrete superstructure. The extension was further protected by a heavy rock embankment dumped on the southwest side. The reinforced concrete cribs are 100 feet long, 50 feet wide and vary from 18 to 31 feet deep, they were constructed at Port Maitland, about 20 miles west of Port Colborne, towed to the site and sunk by opening valves in the bottom. When sunk in the desired position, rockfilling followed immediately.

Air Transport

Oil at Fort Norman Developed Northern Flying

The discovery of crude oil at Fort Norman, N.W.T., late in the fall of 1921, led to the first large-scale attempt to establish long range air transport in the Far North. Imperial Oil Co. purchased two all-metal Junkers planes with the object of establishing more efficient communication to the new oil field from Edmonton. Intense cold, Arctic Blizzards, rough landings in unknown country, inadequate supplies and unsuitable equipment, all were mastered by hard work and indomitable perseverance. (A new propeller was built on one occasion at a Hudson's Bay post from oak sleigh boards and glue made on the spot from moose hide!)

The results of these first years of trial and experimental work proved that aircraft could play a most important part in transportation in the outlying districts of Canada; in forest patrol and exploration; in aerial surveys, by photography and sketching and other similar work. The use of air transport in the North had, in fact become firmly established.

Canadian Nickel

ADDS STRENGTH, PREVENTS BREAKAGE

TWO MIGHTY DRUMS of Nickel Cast Iron turning on 37-ton shafts of Nickel Steel, wind in the cables that hoist ore, men and materials from a Canadian mine. Nickel imparts to the iron and steel the exceptional strength required in this service.

A fisherman winds in his line on a light-weight reel. It is made of "Monel" (⅔ Nickel plus ⅓ Copper) for strength and corrosion resistance.

In all branches of peaceful industry throughout the world, new economies are being effected, new engineering difficulties are being overcome, through the use of Canadian Nickel and its alloys. And still the search for new uses for Canadian Nickel is actively carried on by International Nickel engineers. For Nickel is of no value to Canada until it is sold.

New uses for Canadian Nickel in world industry call for increased production from Canada's Nickel mines and plants. This results in the employment of still more men and the purchase of still more machinery, supplies, freight, lumber and power from all parts of the Dominion.

You are invited to write for a copy of "THE NICKEL INDUSTRY IN 1938"

THE INTERNATIONAL NICKEL COMPANY OF CANADA, LIMITED
25 KING STREET WEST, TORONTO

Ship Canal

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s Greatest Canal

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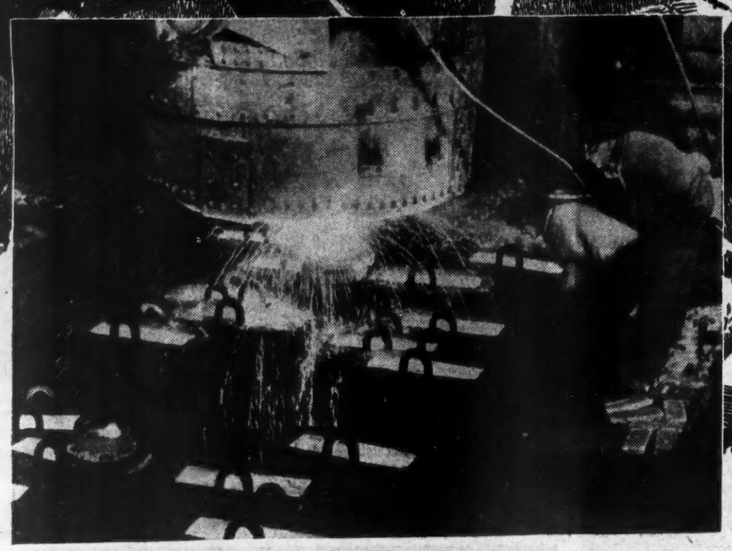
You are invited to write for a copy of "The Nickel Industry in 1938"

A, LIMITED

La Salle builds the "Griffon"-- first commercial vessel on Lake Erie

Rene Robert Cavelier, Sieur de La Salle, born with an impetus to explore, emigrated from France to Montreal in 1666 at the age of twenty-three. Amongst his first achievements was the building of Fort Frontenac (Kingston) in 1674. Materials and supplies for the new ship "Griffon" were carried up to Lake Erie from Lake Ontario. The explorations of La Salle gave France claim to a splendid North American Empire.

Stanley S. Cooper



DFS Pioneers Steel Making Process Which Keeps 93c Of Each DFS Sales Dollar In Canada . . .

"DOFASCO" Flat Steels are melted in electric or open hearth furnaces . . . alloys are added in correct proportion to meet the required specification and ingots are made by the "bottom-pour" method. This process insures an ingot of superior quality, from which DOFASCO Steel Plate and DOFASCOLITE Tin Plate are rolled.

Where there's a will there's a way!

To go where he wanted, the pioneer La Salle built a ship in the wilderness. To go where we want, we in Canada must "roll our own", without relying on other countries to make the steel which Canada requires.

There is a week's work for one man in rolling a ton of steel. Fifty tons gives him a steady job . . . a million tons would make work for twenty thousand, supplying materials, manufacturing and distributing.

DFS pioneering takes the form of studying steel imports -- then engineering so as to manufacture as great a variety as possible in production units of a size suitable for the Canadian demand.

CANADIAN STEEL for CANADA

DOMINION FOUNDRIES & STEEL LIMITED

HAMILTON - CANADA

"DOFASCO" STEEL PRODUCTS

STEEL PLATE — STEEL CASTINGS

"DOFASCOLITE" TIN PLATE — BLUE PLATE — TIN MILL BLACK

The Engineer Has Given Us Our Industries

Canada's Phenomenal Manufacturing Growth Has Followed New Advances in Engineering

From a country deriving its income entirely from the exploitation of her resources of raw material Canada with the years has built up a great wealth creating industrial machine.

Hewers of wood and haulers of water have become processers and exporters of finished products. Centred mainly in the two provinces of Quebec and Ontario her manufacturing plants employ nearly 600,000 workers, or about 16% of the total wage earners of the nation. Gross value of the output from 25,000 factories is more than $3 billions a year and in the boom of 1929 reached $4 billions. The aggregate payroll is something over $600 millions.

Behind this source of national income and national prosperity is the hand of the mechanical engineer, the founder and custodian of the machine age.

Paper making machinery has virtually eliminated Canada's exports of pulpwood. The first paper mill built near Hamilton, Ont., in 1813 has grown into an industry employing 30,000 workers and representing a capital investment of $539.3 millions.

The automotive industry with 12,000 employees had a total production in 1936 of $105.3 millions. Petroleum products accounted for $85.8 millions. A great textile industry with 1,800 plants, most of them in Quebec and Ontario, had a production of $366.2 millions.

So on through the list Canada's secondary industries tell a story of activity for which the engineer may take the largest share of credit.

The making of machinery itself is among the major industrial developments with a yearly turnover of about $42 millions. The machine tool has been revolutionized during the last quarter century. Advance of mining and smelting as well as the development of textiles, pulp and paper, automotive and other industries brought the need for heavy machinery and speedy machinery. Production of munitions during the war brought a new era in metal production. Water power development had the twofold effect of spurring other industrial expansion and making its own demands on the ingenuity of the mechanical engineer. Power projects with exceptionally large units demanded machine tools as accurate as they were large.

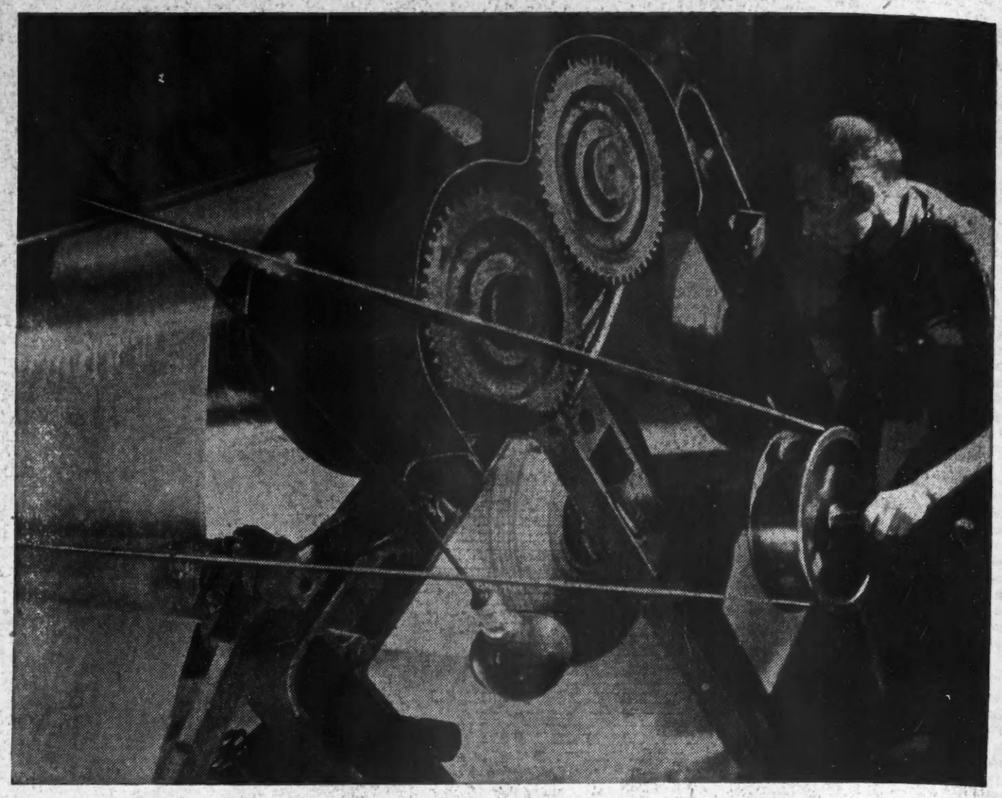
Power generation too opened fresh avenues for the engineer in the designing of electrical appliances and started a new industry in Canada. The output of electrical apparatus valued at $2 millions at the beginning of the century advanced to $15 millions in 10 years. By 1936 gross value of output was $72.2 millions.

Mass production of the automobile brought a demand for single purpose machinery such as cylinder block milling machines, cylinder boring machines, multiple drills, etc. It brought also the need for great hydraulic presses for bodies and parts.

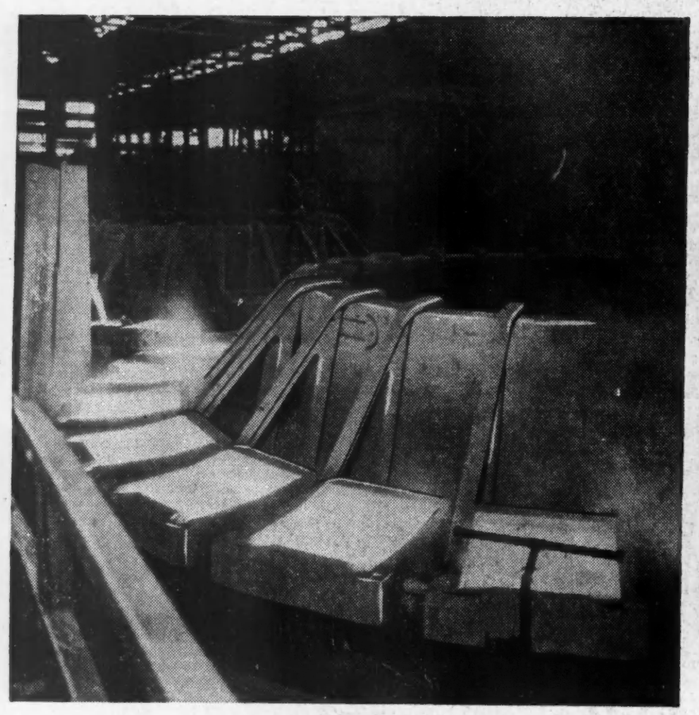
Development by engineers of new alloy steels has been a dominant factor in spurring and improving industrial production. Today some 500 alloys are used in the automobile industry. Electric and oxy-acetylene welding has reduced steel fabrication costs. Its influence has not yet been felt to the full.

Thirty thousand tons of steel and 50,000 tons of pig iron, Canada's production in 1896 had grown by 1911 to 876,000 tons of steel and 917,000 tons of pig iron. In 1938 steel production had reached 11,554,000 tons and pig iron 7,046,000 tons. The dream of a self-sustaining steel industry has not yet been realized but the future, aided by engineering holds promise of further expansion.

A natural channel of growth for Canadian industry has been in the processing of agricultural produce. Butter making, cheese making, canning and meat packing have all developed under the stimulus of labor saving machinery.

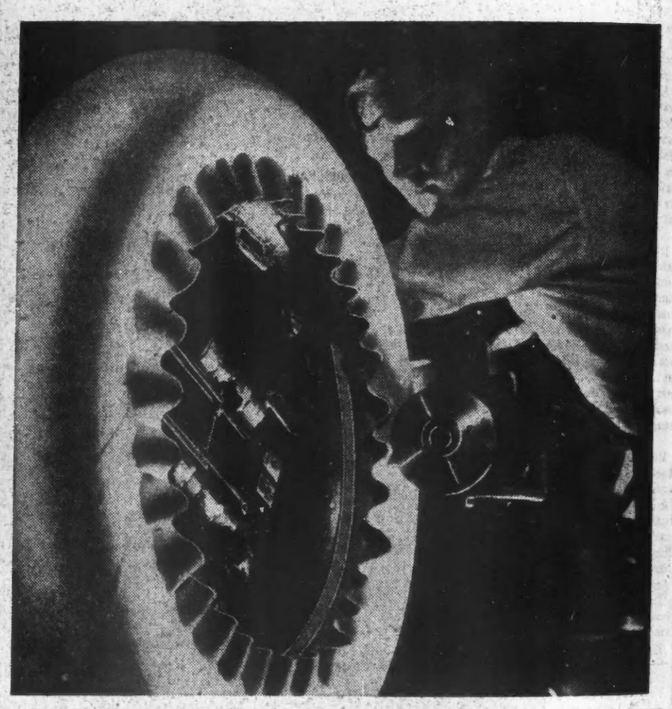


6 A combination of waterpower and forest resources led to the rapid advance of the pulp and paper industry in Canada before 1929. Today Canada has 28 mills making pulp, 24 mills manufacturing only paper and 43 combined pulp and paper mills.



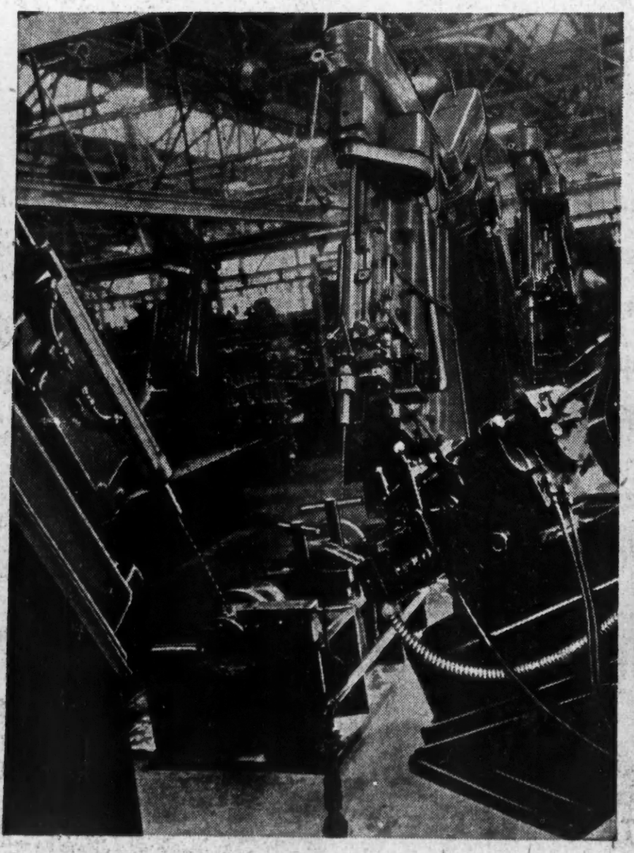
2 In his study of metallurgy alone the engineer has performed a vital service in the development of Canadian industry. Year by year he is finding new uses and new methods of fabricating the products of Canada's metal mines. Nickel from the Copper Cliff refinery of International Nickel Co. is now used by scores of Canadian factories for the making of all-Canadian products. Canada's yearly nickel output is valued at approximately $60 millions.

4 Paints and varnishes are manufactured today in 78 Canadian plants employing more than 3,000 workers. Here the chemical engineer has made one of many contributions to Canadian industry, improving as well as standardizing paint pigments. Here pigment and oils pouring from the rollers of a grinding machine in the West Toronto plant of Canadian Industries Ltd. The mixture passes between three water-cooled rollers and is ground to required fineness.

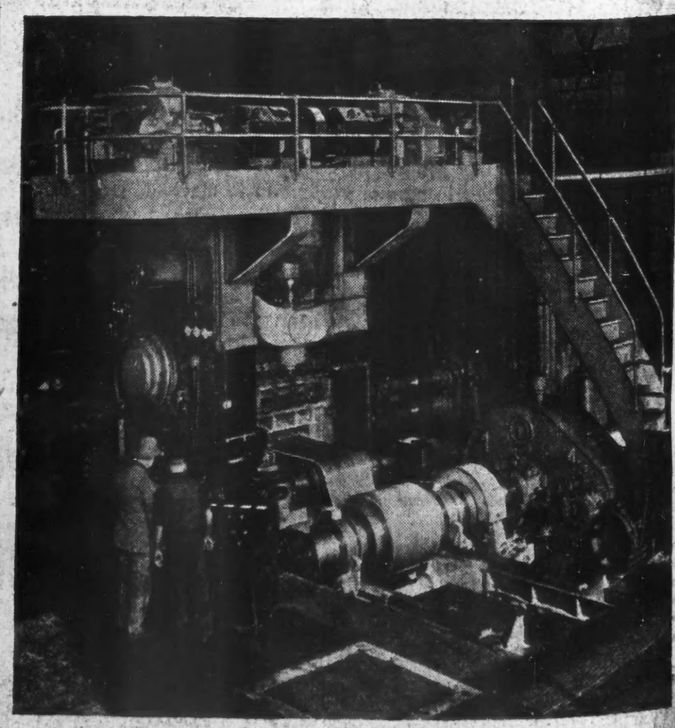


7 Canadian industries, however, are not confined to the processing of her own raw materials. Cheap power as well as the necessity for auxiliary industries has led to the processing of imported raw materials. Rubber and textiles are outstanding examples of this development. Here the fabric of an automobile tire is being fitted.

3 Canada's manufacture of aluminum products in 1937 contributed $7.1 millions to the industrial income of the Dominion, according to figures supplied by The Financial Post Business Year Book. Built around the activities of one company this industry paid out wages totalling $1.5 million in the same year. The photograph above shows the pouring of aluminum ingots at the Arvida plant of the Aluminum Co. of Canada. With the increasing activity in the manufacture of aircraft within and outside Canada the demand for aluminum may exceed the supply.



5 These high-precision automatic angular drills in the Chrysler plant at Windsor are among the feats of engineering which have made motor car production in Canada possible. Canada's automotive industry today represents a capital investment of $46.4 millions and employs nearly 13,000 workers.



8 Typical of the contribution of engineering to industry is the activity of Dominion Engineering Works Ltd. In the plants of this company and its subsidiaries mechanical engineering is designing and producing paper making machinery, hydraulic presses, steam power generators and a score more wheels of heavy industry. This reversing tinplate mill is installed at Dominion Foundries and Steel Ltd. in Hamilton. It has a capacity of 30,000 tons annually, cold rolled. *Dominion Engineering photo.*

Cana

T.C.A. Airport C Built at Minimum C Picks Up Aviation

Before the end of the year ada will have her chain of 122 dromes and emergency la fields from coast to coast in t ing order, each representing a engineering project.

The airports will not all be plete nor will the Canadian minals be equipped with all comforts of home. But in tw sential aspects Canada's a chain will be ready. Each link be as safe as engineering sc can make it and the chain w able to defy any kind of we that the gods can produce.

The total investment in the c excluding the original cost of ports in existence before the T. programme, will be $16 mil just $24 millions less than New is proposing to spend on one ing field. It may or may not the credit of federal and muni governments that they have vided only this amount for the gramme designed to pick up th of years in Canadian aviation gress. It is certainly to the cre Canadian engineers inside and side the Department of Tran and the T. C. A. that they have duced something up to date workable with it.

Airport Construction

The field of aeronautics has braced every branch of engine science. Airport construction as it is known today needs ch the services of two branches: trical and civil. Canadian engi in both fields have faced and come problems which, if they not unique to Canada, were so more numerous and variable they have set a close parallel t older story of the railroad pio

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Sectional Problems

In every section of Canada ferent problems have met the ernment's engineers. Space in Maritimes is so cramped that it been hard to pick spots where t minimum 3,000-foot runway can be constructed. Northwestern Ontari with its massive rock formations been the toughest trail to blaze even the prairies have had obstacles of drainage and wea hazard.

Modernizing Air Chain

Many schedules were the firs fluence in modernizing Can airways. The flying club mover had done something to provide rough foundation for an air chain, but night and bad wea flying on any scale were still in future when J. A. Wilson, contro of civil aviation in the Departm of Transport, obtained permissio survey for a transcontinental way in 1938.

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OVER A CEN

Canada Regains Her Place in the Air

T.C.A. Airport Chain Built at Minimum Cost Picks Up Aviation Lag

Before the end of the year Canada will have her chain of 122 aerodromes and emergency landing fields from coast to coast in working order, each representing a triple engineering project.

The airports will not all be complete nor will the Canadian terminals be equipped with all the comforts of home. But in two essential aspects Canada's airport chain will be ready. Each link will be as safe as engineering science can make it and the chain will be able to defy any kind of weather that the gods can produce.

The total investment in the chain, excluding the original cost of airports in existence before the T. C. A. programme, will be $16 millions, just $24 millions less than New York is proposing to spend on one landing field. It may or may not be to the credit of federal and municipal governments that they have provided only this amount for the programme designed to pick up the lag of years in Canadian aviation progress. It is certainly to the credit of Canadian engineers inside and outside the Department of Transport and the T. C. A. that they have produced something up to date and workable with it.

Airport Construction

The field of aeronautics has embraced every branch of engineering science. Airport construction itself as it is known today needs chiefly the services of two branches, electrical and civil. Canadian engineers in both fields have faced and overcome problems which, if they were not unique to Canada, were so much more numerous and variable that they have set a close parallel to the older story of the railroad pioneer.

Take, for example, the picture of a solo flier circling over northern Ontario bushland in an effort to pick landing field sites and spotting the heavily wooded pinnacle-like summit of an L-shaped hill as the only possible spot. That happened at Allanwater and the engineers instead of grumbling went to work. They cut off the top of the hill and made a safe two-runway field perched up in the air at an elevation which brought the quip from the Government pilot who chose the site that all it needed was a guard rail.

Sectional Problems

In every section of Canada different problems have met the Government's engineers. Space in the Maritimes is so cramped that it has been hard to pick spots where the minimum 3,000-foot runway can be constructed. Northwestern Ontario with its massive rock formations has been the toughest trail to blaze, but even the prairies have had their obstacles of drainage and weather hazard.

Modernising Air Chain

Mail schedules were the first influence in modernizing Canada's airways. The flying club movement had done something to provide the rough foundation for an airport chain, but night and bad weather flying on any scale were still in the future when J. A. Wilson, controller of civil aviation in the Department of Transport, obtained permission to survey for a transcontinental airway in 1928.

The job was handed over to A. D. McLean, Superintendent of Airways. Associated with him were Squadron Leader J. H. Tudhope, Major Robert Dodds and George Wakemen. These four men, spotting their sites from the air, laid out the route for what was to be the Trans-Canada Airways.

Four main factors entered into their decisions, climatic conditions, physical features, accessibility of terminal points to traffic and existing airports that could be expanded and modernized. No matter what its other advantages, you cannot build an airport in the middle of a forest with the expectation that the world will beat a path to its door.

Railway Lines Followed

This was the main consideration in mapping a route which followed the railway lines across Canada. In northern Ontario the route of the transcontinental was chosen. Both C. P. R. and C. N. R. lines to the south were discarded. They ran through rocky unsettled country too near to Lake Superior to escape fogs. The northern route cut across a clay belt from Cochrane west and tapped the growing mining areas.

In the West the Crow's Nest Pass was chosen in preference to the northern routes chiefly on account of weather conditions and also because five existing landing fields could be used. Calgary and Edmonton protested vainly that they were being ignored.

What the airport engineer prays for is one square mile of level land with good drainage. He sometimes finds it in the most unexpected places. At Porquis Jct., Ont., a huge blueberry meadow in the middle of rough country proved a godsend. But for the most part he has to put up with what he can get. What the engineer plans in his dreams is a triangular layout of runway. In Canada his dreams more often than not are unrealized. Canadian airports are every practicable shape which fits local conditions. Two direction runways following a valley or on top of a hill are common. At Sioux Lookout there is a two-level field with a taxi strip climbing the 15-foot elevation.

Three Classes of Airport

The Trans-Canada chain has three classes of airport, the terminal aerodrome, the refuelling and secondary landing fields 100 miles apart and equipped with range finders, and the emergency fields. These emergency fields are about 35 miles apart in rough country and more widely spaced on the prairies.

There are 67 government-owned ports, 34 municipal ports and 21 others. Sixteen fields have paved runways and 38 are equipped today for night flying. In 20 ports runways are 3,500 to 4,500 feet long, in 10 they are from 2,500 to 3,500 feet and 62 have runways from 1,500 to 2,500 feet.

The ordinary landing requirements of the fast, heavy Trans-Canada planes call for a minimum of 3,000 feet at sea level. In higher altitudes the rare atmosphere means landings at higher speed and necessitates longer runs. For each thousand feet of altitude the airport engineer adds so many feet to the requirements. At all principal T. C. A. ports provision has been made for extending runways to 5,000 feet at sea level or its equivalent.

Runway Construction

Runway construction is a highly specialized science evolved from experience in highway building. But the engineer faced with building an airport runway has found that minor problems on a highway become major obstacles on the landing field and that new problems have been created.

The approximate weight of the present Trans-Canada plane is 17,000 pounds, while planes operating in the United States have already reached 35,000 and 40,000 pounds. This weight problem has called into play a comparatively new field of engineering, the soil survey.

The chief function of pavement on either runway or highway is the distribution of weight over the largest possible area. It is still the soil underneath that is carrying the plane or truck. There are scores of different kinds of soil each with different capacity for bearing weight without sagging and the particular variety of soil should determine the thickness of pavement and surfacing. Over one soil three inches of concrete may be sufficient to give the necessary distribution of weight. On another it may require five or six inches in order to scatter it over a wider area.

Rather than vary the thickness of the surfacing it is sometimes safer and more economical to change the soil bed. At Moncton engineers have dug 20 feet and filled in with new soil as well as stabilizing chemicals such as salt.

The extreme example, of course, is in areas of muskeg. At North Bay steam shovels scooped out tons of muskeg, and whole gravel pits near by were transported to the airport site before grading was even started.

Severe Abrasion

Another problem in runway construction is selection of surfacing which will stand the terrific abrasion of a landing plane. On the highway a vehicle starts to move, slowly at first and with increasing speed without any damage to the road. Sudden stops are a greater enemy of road surfaces, but there is nothing to compare with the landing of a plane where stationary wheels in less than a second start running at 60 miles or perhaps 100 miles an hour.

Runway surfacing at T. C. A. fields is from 10 inches to 13 inches thick with broken rock on the lower layers and crushed rock mixed with a stabilizing compound on the top. Runways in all larger ports today, however, are topped with five inches or more of concrete pavement.

Drainage Problems

Drainage problems might be similar to those in highway construction if you magnified them to allow for the difference between a 20-foot-wide strip and a runway 150 feet wide. Crowning if done on the same scale as in highway building would produce something like the rounded roof of a skating rink. To overcome lack of crowning drainage tiles at the sides of the runways are supplemented by broken rock conduits carrying water from the centre outward underneath the surface.

Snow is the Jekyll and Hyde of Canadian airport operation. In the West for four months of the year it provides a hard surfacing all its own better than any rock or concrete. In the East it must be cleared and cleared in such a way that banks of snow are not allowed to accumulate at the sides of the strips. This is done with Diesel-powered blowing machines that scatter the snow over the field.

With runways and buildings completed the electrical and radio engineers take over the job of finishing the modern airport. All larger Canadian fields have light beacons revolving at six revolutions per minute. Strong white boundary lights mark each 300-foot runway strip. At the edges of the 150-foot pavement another row of lights is embedded flush with the ground so that if necessary a plane can run over them without damage. Approaches are marked by green lights and all obstructions by red signals.

Radio Signals

Two-way plane-to-ground radio is installed in all principal T. C. A. ports as well as teletype machines receiving continuous weather reports from the meteorological bureau. At each 100-mile field across Canada is a radio range finder costing about $65,000. They are located about three miles from the landing field and signals are sent from the airport. The range finder consists of four steel towers 145 feet high and set in the form of a square with a diagonal of 600 feet. One set of towers transmits what is known as the A signal and the other set the N signal.

When a pilot flying toward a range station catches these two signals so that they blend into a steady monotone he is on the beam and knows he is headed for a point in the centre. When he reaches this point directly over the centre of the square all signals blank out and he knows his position as accurately as though he were on the ground.

Radio engineers in the Department of Transport at Ottawa are concentrating their energies on improving this range finding system. One of the worst problems is that of static. All Canadian and American beam signals are on low frequency waves. A changeover to ultra-high frequency, it is believed, would solve the static problem and may be one of the next steps in airport improvement. Another plan under consideration is the installation of small five-watt transmitters which would give a distinctive signal in the centre area or zone of silence and remove the doubt as to whether plane is really in that zone or whether a receiver has gone dead.

At present voice and beam radio are operated independently and when the station is talking to the pilot the beam is interrupted. An attempt is now being made to provide simultaneous voice and beam transmission by means of a fifth tower in the centre.

Work Progressing

Engineering work is progressing steadily this summer on all sections of the T. C. A. airport chain. Moncton construction work has run into perhaps more delays than any other port in recent months. Instead of the three strips which it was hoped would be ready this summer, one strip is now promised by the fall. Radio facilities, however, will be complete between Montreal and Moncton by the end of this month.

St. Hubert airport is being improved almost to the extent of reconditioning. Hard surface runways are being paved, new lighting is being installed and longer runways completed.

With the opening of the Island airport Toronto takes the lead in airport facilities. At a cost of something under $2 millions, half of which has been contributed by provincial and Dominion governments, she has jumped from behind to produce a land and sea base close to her business district, as well as the auxiliary port at Malton. The Island airport is recognized as one of the major feats in aviation engineering on the continent. More than two million cubic feet of hydraulic fill were required for grading.

At Winnipeg, Regina, Calgary, Edmonton, runways and lighting are being improved and new drainage facilities installed.

These 17,000-pound Lockheed passenger planes operating on the Trans-Canada Airways have made new and exacting demands on the engineer engaged in airport construction. One of these planes landing on a highway equipped to carry motor traffic would soon dig holes in paving or hard surfacing. Canada's terminal airports have been constructed to stand not only the abrasive action of the planes now used but that of much heavier planes of the future. Fill 20 feet deep has been used at some of Canada's airports under solid concrete paving.

1889 – 1939

Among the influences which have contributed to the building of Canada has been the careful investment of the savings of the individual and the surpluses and reserves of industry. In its fifty years of business, this firm has paid particular attention to the investment needs of the individual and its recommendations have always been guided by this principle.

A. E. AMES & CO.
LIMITED
Business Established 1889
TORONTO
Montreal Winnipeg Vancouver Victoria New York London, Eng.

Ft. Douglas, established in 1813, by Lord Selkirk. Adapted from pictures in the John Ross Robertson collection, Central Reference Library, Toronto.

Lord Selkirk

In 1803, Lord Selkirk, the colonizer, planted his first group of sturdy Scottish Crofters in Prince Edward Island. Later in 1811 and 1812 he brought out two larger parties of colonists and established them in the valleys of the Red and Assiniboine Rivers. Ft. Douglas, pictured above, was built by him in 1813 near the present site of Winnipeg, as their headquarters.

NATION BUILDING

JUST nineteen years after Selkirk and his Red River settlers built Ft. Douglas, this Bank first opened its doors. For over a century, it has served Canada in providing the "sinews of peace" that has helped make it possible for this new country to develop into one of the foremost nations of the world.

Today, this century-old Bank is ready to co-operate with forward-looking business men and welcomes their inquiries.

Coast to Coast in Canada

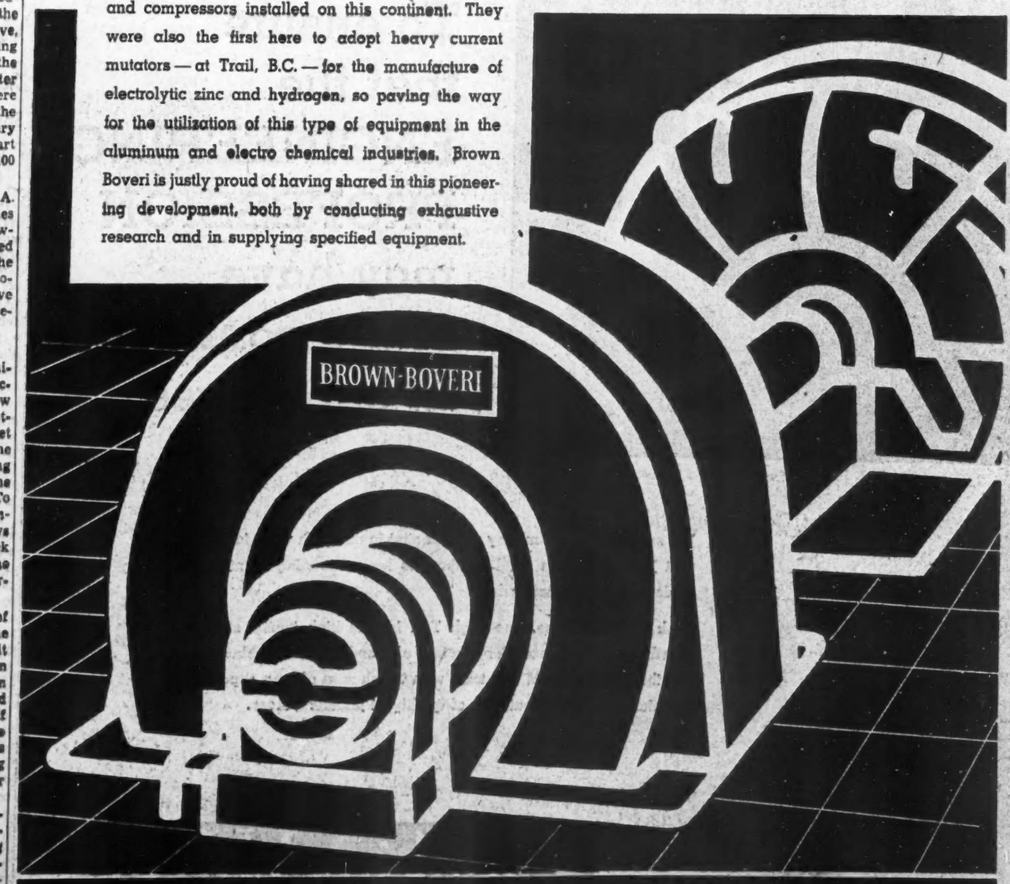
NEWFOUNDLAND, JAMAICA, CUBA, PUERTO RICO, DOMINICAN REPUBLIC, NEW YORK, CHICAGO, BOSTON, LONDON, ENGLAND.

The BANK of NOVA SCOTIA
OVER A CENTURY OF BANKING EXPERIENCE

Brown Boveri

First in North America

Canadian engineers specified the first turbo blowers and compressors installed on this continent. They were also the first here to adopt heavy current mutators — at Trail, B.C. — for the manufacture of electrolytic zinc and hydrogen, so paving the way for the utilization of this type of equipment in the aluminum and electro chemical industries. Brown Boveri is justly proud of having shared in this pioneering development, both by conducting exhaustive research and in supplying specified equipment.



SWISS ELECTRIC COMPANY of CANADA LTD.
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MONTREAL

Canadians Use Their Telephones

Lead the World in Calls, Second In Installations — First Phone Here

Nowhere in the world is there a more telephone conscious people than Canadians. This is not surprising. The telephone was invented at Brantford, Ontario. There Alexander Graham Bell made one of the great discoveries of modern science.

This country leads the world in the use of the telephone with 222 conversations per capita per year and bows only to the United States for the number of telephones per one hundred people. Out of every one hundred Canadians, 11.48 have telephones.

Telephone in Hand

Canadians spend about $12 millions in telegrams annually. They write nearly 800,000,000 letters for the same period. But approximately 2,500,000,000 telephone conversations take place over Canadian wires in a year. Breaking down this total into an understandable figure, every day an average of 6,500,000 local and 75,000 long distance calls are being made.

Taking the average length of conversations as 2½ minutes, it follows that the telephone talks by Canadians in a single day would equal one voice, talking day and night, seven days a week for 31 years.

Over 3,000 Systems

There are over 3,000 telephone systems in operation in Canada.

Saskatchewan alone has 1,178 systems, of which 1,153 are co-operatively owned.

Alberta has 419 co-operatives and Nova Scotia 206.

Ontario has 351 stock companies and 132 municipal systems.

Then there are the seven major systems in the nine provinces, privately and publicly owned, which with the small local systems provides service for more than 1,300,000 telephones scattered throughout the Dominion.

Nine Times Around Globe

To serve such an area there must be enough miles of telephone lines to build nine lines around the globe; enough miles of wire to span the distance from the earth to the moon 22 times; nearly enough underground conduits to make a small tunnel through the centre of the earth.

It takes 18,000 men and women drawing an annual payroll of $23.5 millions to operate this widespread network.

Canadian service is not merely vast in extent. It is swift and efficient. Of the 22 million long distance calls handled by the Bell Telephone Co. of Canada, last year, nearly 92% were completed while the calling party remained at the telephone. The average time for making a connection was only 85 seconds. Out of every one thousand calls, over 980 were put through without error.

Started in Hamilton

Telephone service in Canada was initiated with the inauguration at Hamilton in March, 1878, of the first telephone exchange in the British Empire. The first telephone switching centre in the world had been opened two months earlier in New Haven, Conn.

From this small beginning developed the Bell Telephone Co. of Canada which in the years to come was to provide service over the greater part of the Dominion.

By the turn of the century the telephone, while still a novelty in many districts, was known and in use in a great many communities.

On the coast a number of independent systems were in operation later to develop into the B.C. Telephone Co. In the Prairie Provinces the Bell Telephone was attempting to encourage development by long distance management. In Ontario and Quebec the Bell system was consolidating the available telephone service. In the Maritime Provinces the Bell followed much the same policy.

Decentralize Bill System

In the early years of the industry The Bell Telephone Co. recognized extreme difficulty in managing a continent wide telephone system.

The resultant dismemberment of the company brought into being the corporate or government control of the telephone business as it is known to Canadians today.

The first step in the reorganization of the telephone business took place in the Maritimes. The Nova Scotia Telephone Co. was created to take over the properties of The Bell Telephone Co. in New Brunswick and Nova Scotia. Later the Nova Scotia Telephone and other properties in Nova Scotia were required by the Maritime Telegraph and Telephone Co., which today serves practically the whole of Nova Scotia and through its subsidiary, Prince Edward Island.

The New Brunswick properties were acquired by the New Brunswick Telephone Co., in which The Bell system still holds a controlling interest.

While there has been a financial interest between the Bell and The Maritime systems through the years, the separation of the western properties is more complete. In 1906 the Alberta Government had entered the telephone business in a small way when The Bell decided to concentrate operations and in 1908 the Government acquired the Alberta property.

At the same time the Saskatchewan and Manitoba governments did likewise in so far as the properties in their own particular province were concerned.

Seven Major Systems

These corporate moves resulted in the creation of seven major systems which today account for around 90% of the total telephone business in the country.

There are a number of other well defined and important systems, privately and publicly owned. In this other group might be included Eastern Townships Telephone Co., Farmers Telephone Co., Okanagan Telephone Co., Atlantic Utilities and its subsidiary Island Telephone Co., Quebec Telephone and Power, Northern Telephone Co. and the municipal systems of Fort William, Port Arthur and Edmonton.

Co-operation in General

Reciprocal arrangements for exchange long distance business are operated by the Bell system and the independents and the last three years has seen development of the Trans-Canada Telephone System through collaboration between the Bell and the other major systems.

The Trans-Canada Telephone System is one of the most extensive and most important voice communication systems in the world. Through the use of this system it is possible for a telephone user in Halifax to speak to a friend in Vancouver, some 4,200 miles away.

Trans-Canada Circuit

The development of this system is one of the outstanding engineering achievements in telephony.

The Trans-Canada circuit is so designed that a call from Vancouver to Halifax requires only two switches.

High-grade pole lines have been made available between Halifax and Vancouver to carry these circuits. To provide pole lines with sufficient strength, it was necessary to completely rebuild some 2,000 miles of lines and to add poles in other sections.

The largest size standard wire for telephone purposes, one sixth of an inch in diameter, has been used for over three quarters of the distance In addition it was possible to take advantage of new developments, such as an improved carrier and pyrex insulator, to ensure that high-grade service would be given even on the longest calls.

Radio-Telephony in Use

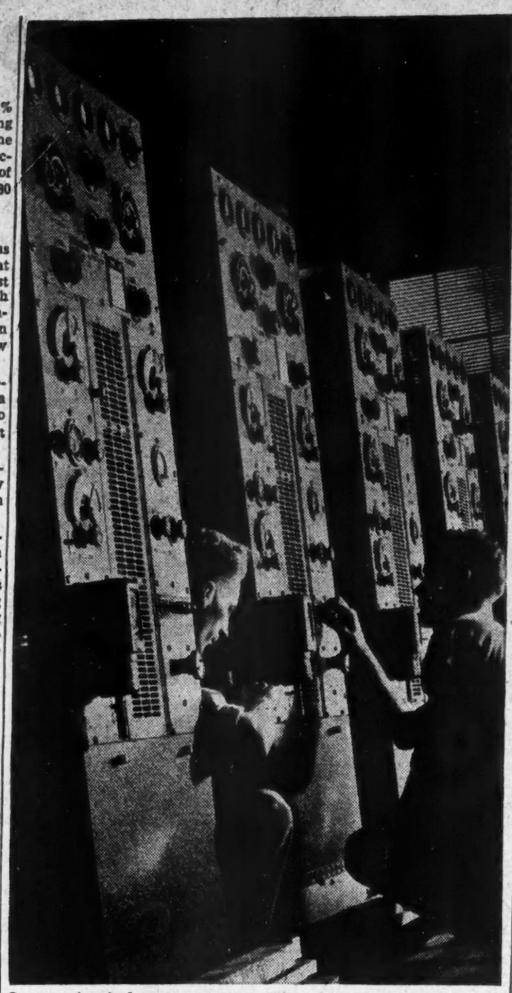
No story of the telephone service in Canada would be complete without reference to radio-telephony in which Canada has been to the fore among the nations of the world.

Until 1932 telephone calls between Canada and Europe were routed through New York. In July, 1932, coincident with the Imperial Economic Conference at Ottawa, direct service to London via Montreal was inaugurated as a result of the co-operative agreement between the Canadian Marconi Co., Bell Telephone Co. of Canada and the British Post Office.

Serve Remote Areas

Radio telephony is also used extensively in the more remote sections of Canada, especially on the Pacific Coast, the Great Lakes, along the lower St. Lawrence, northern Ontario, northern Alberta and the Northwest Territories. Isolated lighthouses and coastal stations have now been equipped with this means of communication.

Practically all the telephone services in Canada are interconnected. They also connect with those in the United States and with telephones in practically every corner of the world, making it possible for a Canadian subscriber to get in touch with at least 35 million telephone users the world over.



Overseas terminal equipment in the Montreal toll exchange building of the Bell Telephone Co. of Canada. All overseas calls are routed through this point, both incoming and outgoing, linking up the various telephone systems in Canada, Canadian Marconi Co., and the British telephone systems.

Flying Box Cars

Carrying giant mine machinery in all weathers with extremes of heat and cold, landing in any half clear moose pasture, or in any not too rocky, not too stump-pocked lake, has produced a class of airplane almost unique. Canadians call them flying box cars.

They are not fast. They are heavy and they have more engine power than the average plane. They have great wide doors. Some of them have a special door under the snout for carrying long freight like drill steel. They are well protected in the spots where a bump from a 1,000 pound piece of machinery could do harm.

There are few of the fancy devices found on other modern machines. One bush flier not long ago bumped his wing in an unexplored rough moose pasture. It cost him $10,000 to repair, for he had an all-metal wing. The whole thing had to go back to the factory for twisting back into shape. Most "bush" machines have tubular steel, fabric covered fuselage, wooden, fabric covered wings. Long experience has failed to find anything better.

Canadian Pioneering

In the use of skis and floats Canadian airplane men have done much of the world's pioneering. Hardly anything else is used on the bush machines. There is just a right size for bush machines, too. Mining machinery is vast in size and weight. Distances are long. But lakes and moose pastures are often small. So often are loads. Canadian aeronautical engineers have done a fine job in developing machines and adapting other machines for this unique service. Mine machinery companies have co-operated in redesigning many of their machines so that they can readily be broken down into pieces that can be loaded easily and economically into flying box car interiors.

MONTREAL ENGINEERING COMPANY
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Consulting and Operating Engineers
Public Utilities
244 St. James Street - Montreal, Canada
Cables: "Monenco"
Special Representatives in New York and London

SPUN ROCK WOOL INSULATION · HEAT COLD SOUND

The First Five Years

Five years ago we initiated the manufacture of rock wool insulation in Canada. We are proud of our place of priority in this young but expanding industry; and we appreciate the commendation we have received from the prominent engineering authorities whom we have served, both in Canada and in many other countries.

SPUN ROCK WOOLS LIMITED
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To ensure that the ENGINEERING PROFESSION may have entire confidence in our valves

We spend time and money without stint in research work to ensure that Jenkins Valves shall continue to be outstanding in material, in design and workmanship.

High quality bronze, fine High Test iron of high tensile strength, together with every modern facility of foundry and machine shop, are the raw materials and tools with which men of long experience maintain the high reputation of quality of Jenkins Valves.

Jenkins Valves
SINCE 1864
Always marked with the "Diamond"
BRONZE · IRON · STEEL
MADE IN CANADA BY JENKINS BROS. LIMITED, MONTREAL
OBTAINABLE AT YOUR LOCAL SUPPLY HOUSE

Waterways Survey

Speed, Safety and Cheapness of Navigation Based On Accuracy

In no branch of surveying is accuracy and reliability put to a more definite test than in the survey and charting of Canada's coastal and inland waterways, writes J. M. Wardle, director of Surveys and Engineering Branch, Dominion Department of Mines and Resources, in a special paper for the semi-centennial committee of the Engineering Institute of Canada. With the development of modern navigation, involving greater drought, higher speed and more intense competition, modern accurate charts are a necessity and in constant demand. Improvements in ships and increased sea traffic must be met with improvements in navigation safeguards.

Comparatively fast speed in fog and cutting of corners may save for a ship the fuel and other expenses that will turn loss into profit. To carry on this practice safely, there must be absolute reliance on the accuracy of the marine chart. The magnetic compass has been replaced by the gyroscopic compass, and the sounding lead by the echo-sounding instrument. In both hydrographic work and navigation the direction of the course is checked and determined with the highly developed radio direction finder.

Of all charting aids, that of the echo-sounding instrument for determining depth is without doubt the greatest and most important innovation. In speed, scope and accuracy the modern method far surpasses the old handline and wire sounding devices. A ship equipped with an echo-sounding instrument can follow a charted channel under the worst fog conditions. Canadian hydrographers have been among the first to adopt this method of accurately plotting sea-floor topography. Today all hydrographic steamers are equipped with this modern instrument and many of the launches as well.

7 REASONS why DOMINION BATTLESHIP LINOLEUM FLOORS... ARE Better!

BEAUTY — There are 11 colours to choose from with widest scope for original design.

PERMANENCE — With Dominion Battleship Linoleum, your floors are covered permanently and will carry heavy traffic for years.

QUIET — Dominion Battleship Linoleum ends the noisy clatter of boot-heels.

SMALL UPKEEP — Dominion Battleship Linoleum cuts janitor costs. An occasional waxing is the only care required.

EASILY INSTALLED — Any competent Flooring Contractor makes a quick, efficient job of installing Dominion Battleship Linoleum.

5 YEAR GUARANTEE — When laid to our simple specifications Dominion Battleship Linoleum (AAA & AA gauges) is covered by our 5-year Guarantee.

LOW COST — The first cost of a Dominion Battleship Linoleum floor tells the *whole* story.

ASK THE MAN *who knows!*

Above installation: Hubert Ashplant & Sons, London, Ont.

DOMINION OILCLOTH & LINOLEUM CO. LIMITED MONTREAL
Consult your Architect or House Furnisher. Write us for copy of booklet on "The Care of Linoleum".

A usual reaction is this: "My new custom-built Dominion Battleship floor not only looks good but it enhances the appearance and comfort of my showrooms."

Communications Engi Keeps Canada Abr of World Developm

The remarkable developme the field of what is broadly k as radio, traceable almost ent to the work of communication gineering, is matched if not ex ed by what this branch of the fession promises for the future

In the past 20 years, research perimental operation and inte development has assured Cana an unexcelled share in the mo marvels of radio broadcasting, telephony, police and other m radio equipment. Advances in and allied branches of sound t mission and reproduction largely responsible for adver sound-synchronized motion pict

In the progress made to date, ada has largely reaped the ad tage of achievements in world tres of research and developme the communications industry. cially New York and London. Canadian engineers have s their country well and kept Dominion abreast of developm in the rest of the world. Cana engineers and enterprise forged a worthy record of ada world radio progress to Cana requirements; carrying on the e tial work of designing, fabrica installing and operating facil making virtually all nece equipment available from Cana sources; and developing specia vices and types of equipmen meet special Canadian needs.

Nor have Canadian engineers ged in the inventive field. Ov years ago the late E. S. Roger Toronto, perfected the first bat less radio in the world, and led way to development of mo radio. And only this year, CBC neers, in collaboration with Nort Electric Co., developed an ent new type of portable and other units for broadcasting the R tour.

In the swift unfolding of radi we know it today, virtually branches of communications acoustical engineering have pl a part.

Political, Financial Handicap

With such a combination of neering resources, it may safely said that the limitation which vailed until recent years on C dian radio development, with ticular reference to radio broadc ing, cannot be blamed on lack engineering capacity. Rather po al factors have hampered move the past to provide adequate fa ties for national enterprise.

Financial and economic hobbles have handicapped private enterprise in the field. At the same time, t greater progress made in re years in providing modern r facilities and coverage cannot ecure the very real contribu made in the pioneer and second stages of radio development in C ada, by the private interests engineers who often maintai operations doggedly in face of s ous discouragement.

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Some of the greatest advances engineering of radio in recent ye have been in the field of transmitt equipment. Above is the mode type transmitter house and 647-f steel antenna tower (or radiator) station CBL at Hornby, Ont., one the four 50,000-watt stations of t CBC chain.

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Radio is Engineering

Communications Engineer Keeps Canada Abreast of World Developments

The remarkable development in the field of what is broadly known as radio, traceable almost entirely to the work of communications engineering, is matched if not exceeded by what this branch of the profession promises for the future.

In the past 20 years, research, experimental operation and intensive development has assured Canada of an unexcelled share in the modern marvels of radio broadcasting, radio telephony, police and other mobile radio equipment. Advances in radio and allied branches of sound transmission and reproduction were largely responsible for advent of sound-synchronized motion pictures.

In the progress made to date, Canada has largely reaped the advantage of achievements in world centres of research and development in the communications industry, especially New York and London. But Canadian engineers have served their country well and kept the Dominion abreast of developments in the rest of the world. Canadian engineers and enterprise have forged a worthy record of adapting world radio progress to Canadian requirements; carrying on the essential work of designing, fabricating, installing and operating facilities; making virtually all necessary equipment available from Canadian sources; and developing special devices and types of equipment to meet special Canadian needs.

Nor have Canadian engineers lagged in the inventive field. Over 20 years ago the late E. S. Rogers, of Toronto, perfected the first battery-less radio in the world, and led the way to development of modern radio. And only this year, CBC engineers, in collaboration with Northern Electric Co., developed an entirely new type of portable and other radio units for broadcasting the Royal tour.

In the swift unfolding of radio as we know it today, virtually all branches of communications and acoustical engineering have played a part.

Political, Financial Handicaps

With such a combination of engineering resources, it may safely be said that the limitation which prevailed until recent years on Canadian radio development, with particular reference to radio broadcasting, cannot be blamed on lack of engineering capacity. Rather political factors have hampered moves in the past to provide adequate facilities for national enterprise.

Financial and economic hobbles have handicapped private enterprise in the field. At the same time, the greater progress made in recent years in providing modern radio facilities and coverage cannot obscure the very real contribution made in the pioneer and secondary stages of radio development in Canada, by the private interests and engineers who often maintained operations doggedly in face of serious discouragement.

The first broadcast known to have been originated in Canada was staged at Montreal in 1923, as a Canadian Marconi Co. demonstration for the Royal Society of Canada; the first national hook-up in 1927 during the Confederation Diamond Jubilee celebrations, through co-operation of telephone and telegraph engineers with radio men.

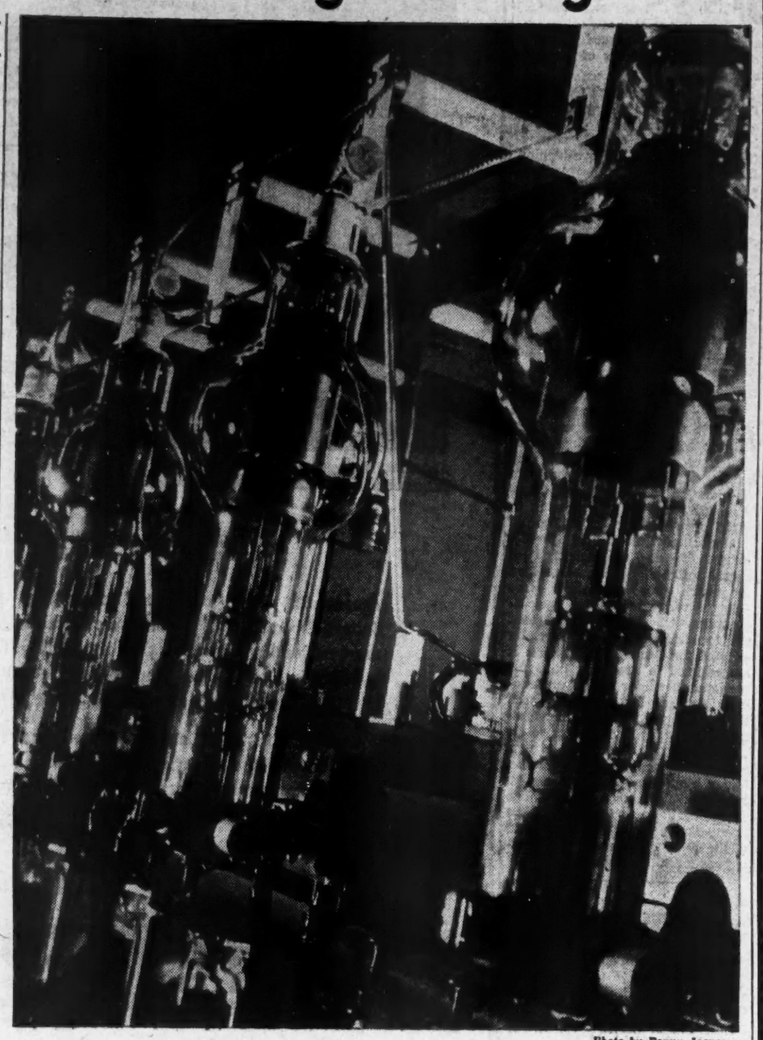


Photo by Ronny Jaques.

Major high power radio broadcasting stations require complex and extensive engineering merely to handle the power supply and the actual electrical output in addition to adaptation of it to broadcast purposes. Above photo shows only part of a bank of high voltage rectifier tubes, used to convert alternating current into direct current for operation of vacuum tubes for CBL, the CBC key station in the Toronto region.

Government Control

From then on Canadian radio developed steadily but within evident limitations, until consideration of the public interest and political phases of radio led to creation of the Canadian Broadcasting Commission and its present successor, the Canadian Broadcasting Corporation. Since radio became a semi-public enterprise, with access to public funds and influence to assure the best in facilities and programmes, Canadian engineering ability has been given far broader scope.

The striking nature of the expansion and improvement within the past few years is shown by figures made public last spring by L. W. Brockington, chairman of the C.B.C.:

1932—Canadian Broadcasting Commission created; aggregate of power of all Canadian radio stations, 45,000 watts, coverage 40% of population.

1936—C. B. C. took over; power of all stations, 80,000 watts; coverage of national network, 49%.

1938—Total power of all stations, 186,000 watts, with national network accounting for 168,000 watts, and C. B. C.'s own stations, 113,000 watts.

1939—Total power all stations, about 285,000 watts, of which C. B. C.-owned stations account for 215,200 watts. The C. B. C.'s four main regional stations serving the Maritimes, Quebec, Ontario and the prairie provinces, account for 200,000 watts, each being of 50,000 watts.

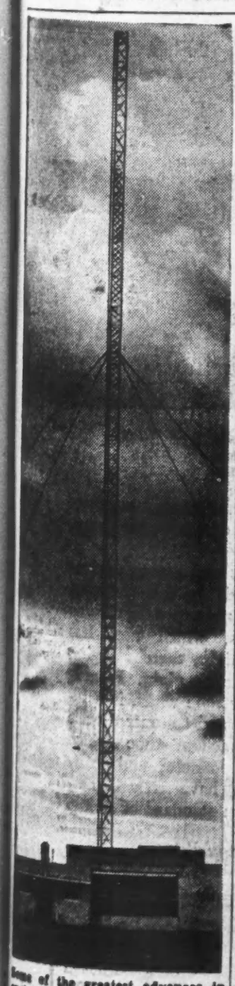
(Figures from other sources show that of the 70-odd radio stations in Canada, over 60 are embraced by the C. B. C. national network, with nearly 40 either C. B. C.-owned [nine] or affiliated on a basis that reserves definite hours for C. B. C. programmes.)

Canadian Production

The power, coverage and efficiency of this expanded radio system, particularly of the C.B.C. network, is in major proportions due to the ability of Canadian radio engineers to meet the requirements made. The design, equipment, installation and operation of all of the four newest stations is the product of Canadian skill. Even the ultra-modern steel antenna towers, ranging from 400 to 650 feet in height, are the product of Canadian engineering and Canadian industry. Both of the advanced type radiator towers at the stations opened this year at Sackville, N.B., and Watrous, Sask., were made by Canadian Bridge Co. Towers for the transmitters serving Toronto and Montreal studios were produced by Standard Steel Construction Co.

From C.B.C. statements of policy it is evident that the Corporation and Canadian engineers will also play a major role in future development in Canada of newer radio forms, such as television, facsimile news and education broadcasts. At present there are serious engineering, operating and financial problems to be solved in adapting these advances to Canadian use. While television has been publicly and commercially inaugurated in the United States, its limited broadcast horizon and the high cost of the coaxial cable required impose development curbs yet to be broken.

Preliminary demonstrations of facsimile have been staged in Canada by the C.B.C., and by a Toronto newspaper in connection with this year's Canadian National Exhibition. But it will remain for the engineers to keep pace with latest developments, and adapt this form of radio to Canadian demands in its most efficient form.



Some of the greatest advances in engineering of radio in recent years have been in the field of transmitter equipment. Above is the modern type transmitter house and 647-foot steel antenna tower (or radiator) of station CBL at Hornby, Ont., one of the four 50,000-watt stations of the CBC chain.

Radio Phone on the Frontier

Baie Comeau Installation Example of Service Provided in Backwoods

Radio-telephony plays an important part in the exploration of Canada's natural resources, especially when they are located in areas difficult of access.

Construction of a large paper mill, hydro-electric plant and complete townsite on the north shore of the St. Lawrence River by the Ontario Paper Co., for example, would have been greatly hampered by lack of adequate communication facilities. This difficulty was recognized at an early date by the company. After a careful survey it contracted for a complete Marconi radio-telephone service.

Installation was made in 1936 at Baie Comeau, Chutes aux Outardes and Shelter Bay to link these points with the outside world by means of a central Marconi radiophone station at Rimouski which is operated in co-operation with the National Telephone Co. At the latter point connection is made with the land-line telephone system which permits direct connection to the local and long distance telephone systems of the world.

The ability to talk directly with its offices in Chicago, Thorold or Montreal, and with contractors, suppliers and transportation companies proved to be of great value to the company during the construction period. As well as serving the business interest of the company, the radiotelephone has been a boon to individual employees and visitors and a large number of private calls are made over the system.

Links With Outside World

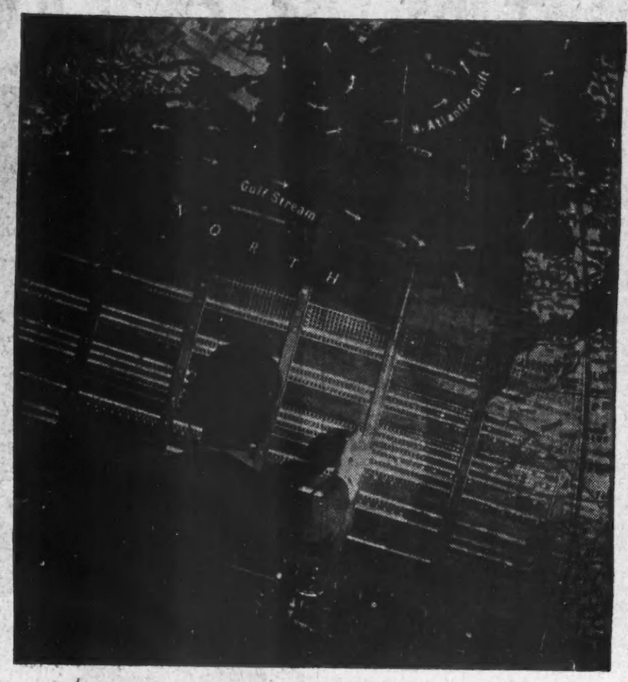
The radiotelephone at Baie Comeau not only provides communication with the "outside" and with other points on the North Shore, but also with the M. S. "Jean Brillant," the modern passenger vessel which shuttles back and forth between Rimouski and the various ports on the North Shore.

Today the radiotelephone at Baie Comeau continues to play its important rôle of conquering isolation and providing urban convenience on the St. Lawrence's North Shore.

Special arrangements are provided for direct radio communication between Baie Comeau and the power generating plant at Outardes, so that in the event of telephone line failure, contact with the power generating station can be maintained—a most important provision.

Photograph by Department of Fisheries, Ottawa.

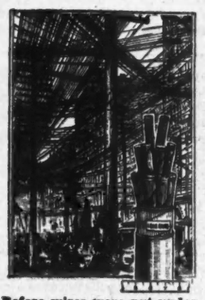
Engineering now enters extensively into what is possibly Canada's most ancient industry, fishing off the Atlantic coast. Diesel units such as this one aboard a Lunenburg schooner, not only supplement sail but provide power for refrigeration and other modern services. These sailing ships of 1939 have electric light, radio to check on markets and weather.



There are now no earthly limits to human speech.

THE WORLD AT YOUR FINGERTIPS

Contribution of Engineers has Revolutionized Telephony. Cable, Loading Coil, Repeater and Carrier Merely Four of Many Improvements Bringing the World Within Earshot



Before wires were put underground—Inset: Cable containing 3,600 wires.

CANADIANS use the telephone more than the people of any other land on earth. The contributions of engineers and scientists in the field of voice communication have been fundamental and have made this possible. Improvements have followed each other in continuous progression. They have involved every phase of the art of telephony. Their cumulative effect has been not only to refine transmission and vastly to extend the range of the human voice, but also to offset increasing unit costs as the scope of the telephone has continued to expand.

Because Canadians have had the full benefits of the outstanding achievements of the telephone laboratories, telephone service here has never ceased to improve. Its cost to the user has been so low as to encourage rapid development.

The part science has played in bringing the art of telephony to its present usefulness may be gathered by reviewing a few of the radical changes brought about by the introduction of certain apparatus and arrangements of equipment.

Telephone Cable

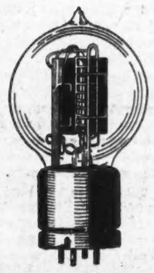
One engineering triumph is typified in the perfecting of telephone cable. Its development gave impetus to the telephone industry, for until the introduction of some means whereby it was possible to place telephone lines beneath city streets, the progress of telephone service downtown in large cities presented a difficult problem.

Today a lead-sheathed telephone cable may contain as many as 3,600 wires, each wire insulated from its fellows, and the whole no thicker than the normal man's wrist. Any four wires together are no greater in circumference than the head of a pin, yet through these tiny voice highways—that is, by means of one cable—over 1,800 telephone conversations may be carried on at one time.

Loading coils—homely but helpful. Note how research has reduced their size.

Loading Coils

When long distance telephone service was first introduced, its scope was greatly restricted. The electric currents set up by the human voice became so weak in travelling along the old-fashioned telephone lines, that conversations between a telephone user in Montreal and someone in Toronto represented for many years about the maximum distance that it was possible to speak.



The Telephone Repeater—the engineers' greatest contribution to long distance voice transmission.

Around 1911, loading coils were invented and when these were connected to the telephone line, they almost doubled the range of the human voice. Loading coils introduce longer waves into the telephone circuit, and reduce losses in the voice currents.

Today thousands of these loading coils are used in conjunction with telephone cable. Through research, engineers have been successful in reducing their size, and at the same time effecting a corresponding reduction in the cost of manufacture.

Telephone Repeaters

Perhaps the greatest contribution by engineers to the problem of speaking over long distances was made by the invention of the vacuum tube repeater. Telephone specialists adapted this tube to the needs of telephone circuits and thus pushed back the barriers of speech to the point where there are now no earthly limitations to the range of the human voice.

A telephone repeater, which resembles the tubes in a radio receiving set, makes possible telephone conversations from coast to coast and, by means of overseas telephone service, connection is possible with any one of the 37,000,000 telephone instruments located in 79 countries of the world.

Carrier Systems

A development that has added greatly to the capacity of telephone facilities is the carrier system. Carrier makes it possible to transmit several long distance conversations at the same time over a single pair of wires.

Similar in action to a radio receiving set through which it is possible to "tune in" on different broadcasts, carrier steps up the frequency imposed on the telephone lines from one level to another so that at each level a talking channel is provided. By means of the carrier system, engineers provide many of our talking circuits "artificially" by imposing such an arrangement on a physical circuit.

The carrier system multiplies simultaneous conversations over a single pair of wires.

Each day telephone users in this country place on the average 6,500,000 local and 75,000 long distance calls in the transaction of their social and business affairs. This in itself is a speaking tribute to the great fraternity of engineers.

Test Tubes of Canada's Progress

Research Council Engineers Keep Industry One Step Ahead of Times

Every night Canadians sink back to sleep in the deep cushions of Trans-Canada airliners to be flashed across the continent.

How do you know you will be safe? How do you know that wing stretching out beneath your window won't buckle and collapse? How do you know one of those struts won't clip off? How do you know something in the engine won't crack?

One of the most important links in the long chain of safety is a big machine in a two-story room of the National Research Council in Ottawa. This machine starts on safety where human skill, character and training can go no further.

Canada's Largest X-Ray

It is the largest x-ray machine in Canada and one of the biggest on the continent, 600,000 volts. It is the eye that peers through seven inches of solid steel— that finds the hidden flaws, the fissures, the bubbles that mean — you can't depend on it.

Airplane castings are not seven inches of steel. But nearly every casting that goes into an airplane built in Canada now gets the x-ray test. National Research Council experts are examining almost 1,000 airplane castings a week. When x-ray tests were first applied to airplane castings, it was found that 90% that looked perfect to the eye were defective inside; in other words that 90% of the castings were threatening human lives.

Covers Engineering Field

But protecting human lives by x-raying pieces of airplanes, bridges and high-pressure boilers is just one little part of the National Research Council work.

Virtually the whole field of engineering in Canada is embraced in the scope of the N.R.C. activities and in the personnel of its research workers. It is the supreme guardian over Canadian standards of length, size, power, strength, etc.

You may never need to measure within one-millionth of an inch. If you do N.R.C. is the place you can get that done accurately.

Eldorado Mines produced an important part of the world's radium. One "bullet" of radium may look like another in size, weight and color, but it is the radiation of the particular "bullet" that is the important thing. N.R.C. scientists have a reliable method of measuring radiation. Now every radium "bullet" manufactured in Canada carries the imprimatur of, and is certified by, the N.R.C.

That's one side of the N.R.C. job. The other is research in the ordinary sense of the word. Not trying to split the atom or solve the riddle of the universe but finding new ways of using Canadian raw materials; helping industry do jobs better and more chesply; developing new industries; pointing the way to tomorrow.

The Canadian oil industry at one time imported $300,000 worth of clay yearly for use in refining. The N.R.C. was put on the hunt for a Canadian product. Its chemists found ultimately — not overnight — three good Canadian clays. One of them better than anything that could be imported.

Making Use of Waste

There was the "death fog" at Trail out in British Columbia. The fog that settled down over the countryside and blighted all growing things.

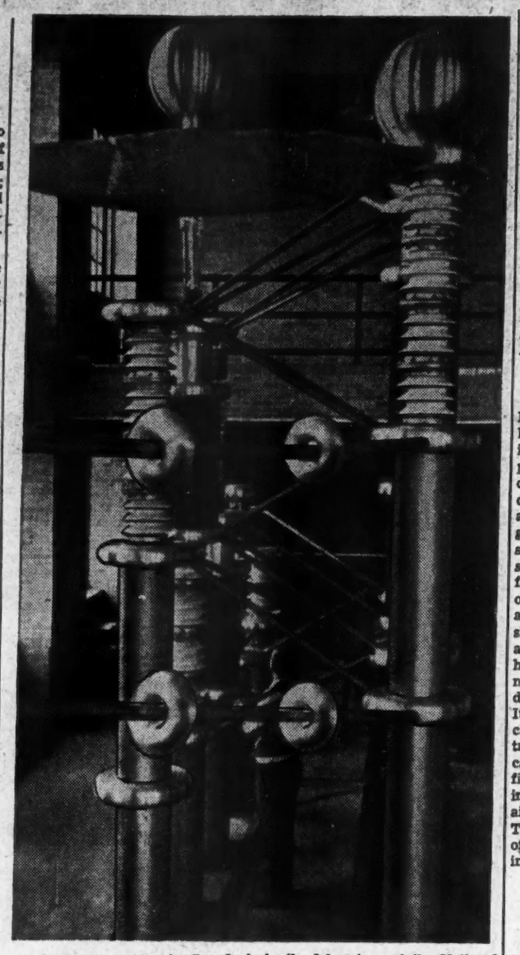
N.R.C. scientists studied the effect of smelter smoke on plants and trees. Research men of Consolidated Smelters found a way to sift dollars from that belching from the chimneys. A 15-million dollar plant was built to make fertilizer and chemicals out of the 650 tons of sulphur dioxide which formerly went to waste.

The tire and rubber industry of Canada imported 14 million pounds of carbon black in 1936 for hardening purposes. N.R.C. chemists have developed a process by which Turner Valley's waste gas can be turned into carbon black with extraordinary efficiency—in fact with some fourfold greater yield than anything achieved in the past. This prize apparently still awaits some enterprising industrialist.

Aid For Steel Industry

One of the most striking jobs the N.R.C. has done is with refractory furnace lining for the steel industry.

Prior to the Great War the Canadian steel industry imported extensive quantities of this material from Austria. The war cut off those supplies and the Canadian product was accepted as a substitute. The industry was able to exist on the basis of the high price it could get for its substitute. The war over this industry was faced with extinction. A delegation to Ottawa asked that the Government save their lives with a high protective tariff. The minister, Hon. J. A. Robb, refused, and, instead, made a grant to the N.C.R. Companies and researchers worked in close co-operation. Results brought lower costs and higher profits by 1932. By 1936 there was a five-fold increase in employment in Canadian steel plants over 1932, and as the fuel used is Nova Scotia coal and other materials are largely of native origin the benefit to employment in Canada has been widely distributed.



Largest X-ray machine in Canada is in the laboratory of the National Research Council at Ottawa. Its most important function is to spot defects in castings.

Royalties collected by the N.R.C. on the refractory lining process are substantial and are being placed in a special fund to support further research.

At the request of a Canadian railway, the N.R.C. studied railway engine designs. Its scientists found how locomotives could look better, how wind resistance could be cut almost in half and how smoke could be kept from obscuring the engineer's view. Locomotives of the new design were built in Canadian shops and are now hauling Canadians and their products daily.

Railway Engineering

Another development in which the N.R.C. co-operated with the railways was in the improvement of the perishable freight service during the winter months.

By means of an underslung charcoal heater, perishables such as fresh fruits and vegetables can now be carried through the severest weather for long distances without either the danger of frost damage at the bottom of the load or overheating at the top. The new system enables the carrying of fresh meat under sufficient heat to prevent freezing. This was impossible with the old system of heating because the upper part of the carcass almost invariably got overheated and spoiled. The operation of the heater is so simple and the design so rugged that it is being put in hundreds of refrigerator cars.

The National Research Council is the stage manager of industrial and engineering research in Canada. It is attempting—not entirely successfully—to eliminate all overlapping. It stands ready to co-operate with any industry as well as with government departments and universities.

"It is the business of research to serve an expanding civilization," says Gen. A. G. L. McNaughton, its dynamic chairman, "to find new and better methods of satisfying old requirements; to open the way to new services needed by the public and to create the materials and technique through which they may be developed."

Aviation Benefits

Only a few things done by the N.R.C. have been related here. It is helping manufacturers find better insulating materials, longer-lasting paints, enamels and varnishes. In co-operation with the Royal Canadian Air Force it is pioneering in aerial map making providing the guidance and technical skill for the survey of tens of thousands of square miles of the Canadian land for which previously there were only the vaguest and often inaccurate maps. The N.R.C. has designed skis for airplanes of a type specially adapted for Canadian conditions. It has assisted in designing hulls for new speedboats for the Royal Canadian Mounted Police Coast Patrol. It is working on radio weather forecasting of special importance to air transportation. There is a new cathode ray compass and direction finder which promises to have an important place among radio aid to air navigation particularly on the Trans-Canada Line in the mountains of the West where weather recording has left much to be desired.

Sources of Water

Water supplies in Canada are drawn from several different sources. The quality of these sources varies a great deal. Water from the Great Lakes is relatively free from color, only moderately hard and generally acceptable.

Much of the water in the wooded section of the north is highly colored, and comparatively soft. Underground water varies so greatly in chemical constituents that no uniformity exists.

Pioneering

Freight Carrying Planes Open New Era in Northern Canada

The airplane, 20th century symbol of the engineer's triumph and mankind's achievement is playing a spectacular role in Canada's mineral development.

By reducing costs, shattering time to tiny fractions, the airplane has brought tens of thousands of square miles of the pre-Cambrian Canada—greatest potential mineral area in the world—within economic reach of man and his machinery.

Take the case of Uchi Gold Mines, in the muskeg, bush and lake district over 200 miles northwest of Lake Superior. Ten years ago the spectacular mining man, John E. Hammell, refused to have anything to do with Uchi. Located in unusually mean prospecting territory and over 100 miles from anywhere, Uchi was too tough a proposition. Airplane rates were $200 per ton.

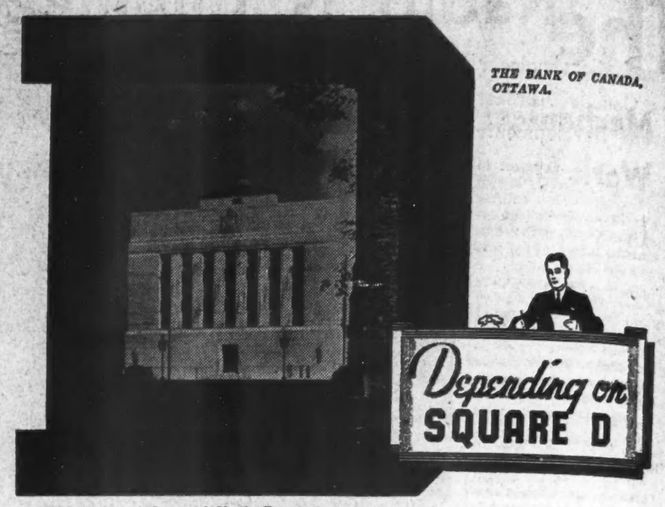
Freight Rates and Profits

Last year air freight rates for Uchi were down to $50 per ton or less. Just as important as the higher price for gold that came in the interval was the economy of air freight. Improved airplane service literally put profits into the Uchi proposition. In a score of districts across Canada, the airplane is helping to bring the wilderness within Canada's economic reach, create employment, create wealth.

Despite the extension of roads and rail lines into some mining areas, air transport has a permanent place in the development and operation of Canadian mining. A large area of Canada is and will remain the airplane's own field. For the vast continent, larger than all Europe, stretching across the north of the Dominion to the Arctic is in topography, climate and apparent economic worth linked with the character of air transport.

Every forward step in aircraft construction has helped the mining industry almost as much as it has helped flying. "Bush flying," as it is called, presents unique problems in aircraft design and maintenance; in pilots and personnel.

There are around 400 commercial aircraft now being operated in Canada, perhaps three quarters of them participating in the mining country business. In 1931 air freight and express in the Dominion, most of it in mining country, totalled 2.4 million pounds. Last year it was about 25 million pounds.



THE BANK OF CANADA, OTTAWA.

ARCHITECT: Marani, Lawson & Morris, Toronto.
ELECTRICAL CONTRACTOR: Fred A. Wilson, Ottawa.

Among the many commercial institutions which depend on Square D equipment in their electrical installation, none is more nationally prominent than the Bank of Canada. The new building in Ottawa is equipped with Square D Panel Boards to control the distribution of all electricity for power and light.

Square D Company Canada Limited is proud to bring this installation to the attention of the engineering profession and business executives and reminds them that Square D equipment is specialized to meet modern electrical requirements.

SQUARE D COMPANY CANADA LIMITED
ELECTRICAL EQUIPMENT

HEAD OFFICE AND PLANT: Christie & Dupont Sts., Toronto; SALES, 980 St. Antoine St., Montreal
SALES AGENTS: Vancouver, J. S. Edwards, 1094 Homer St.; Calgary, H. L. Brews, 304-11th Ave. East; Winnipeg, G. R. Kelly, 128 St. James Ave.; Halifax, Donald C. Keddy, 136 Lower Water St.

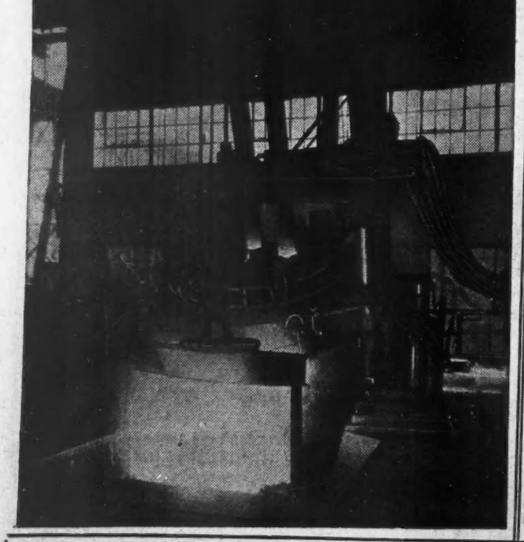
THE NAME
Burlington
MEANS QUALITY IN STEEL PRODUCTS

Burlington are specialists in the manufacture of high-quality, laboratory-tested, hot-rolled steel products for use in manufacturing and reinforced concrete construction work.

Our jobbing type mill allows for quick changing of rolls and the production of a wide range of "Rail Steel" products and "New Billet Steel" sections.

If you use steel in the manufacturing of your product, or for concrete reinforcement — investigate Burlington Steel — the quality is guaranteed.

Descriptive Booklet and Stock List FREE — on request.



Rail Steel and New Billet Steel Sections

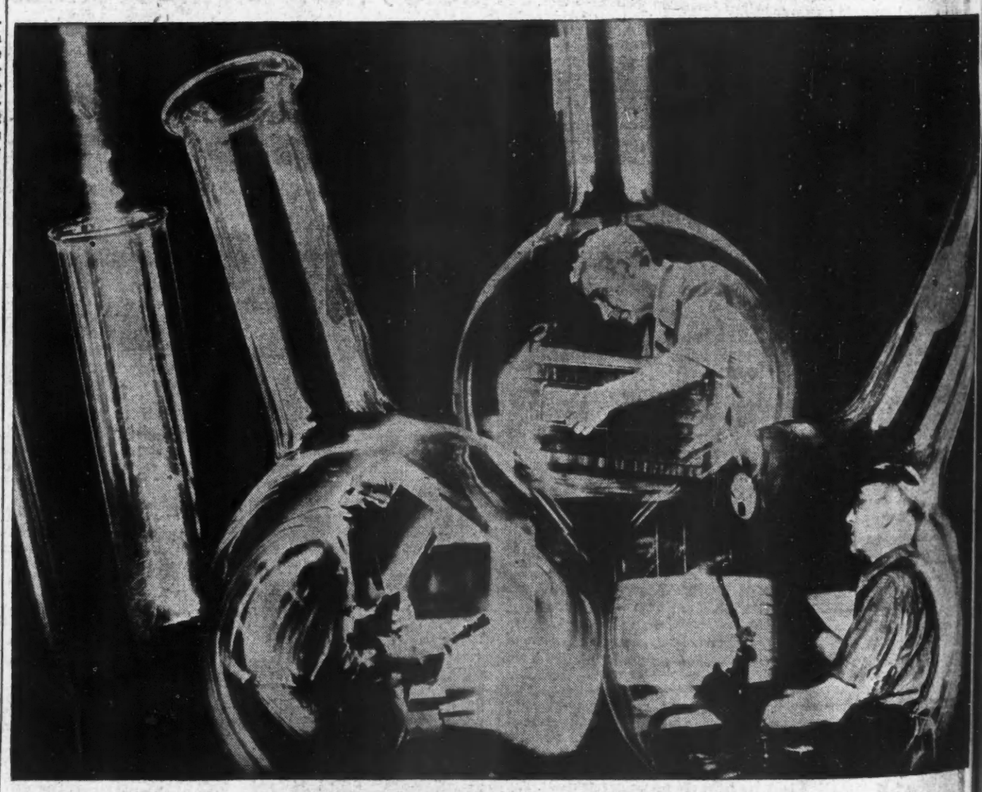
Angles
Band Steel
Box Channels
Bumper Bars
Channels
Channelled Flats
Cross Arm Braces
Concrete Reinforcement Bars
Diamonds
Flats
Fence Posts
Grinding Balls
Half Ovals
Half Rounds
Harrow Channels
Harrow I Beams
Harrow Tooth Steel
Hay Track Section
Litter Track Ovals
Octagons
Plow Beams
Rounds
Round Edge Flats
Round Corner Squares
Rib Bars
Squares
Sleigh Shoe Steel
Sleigh Shoe Channels
Special Sections
Tee Bars
Tubing
U Bars

Electricity is the cleanest heating agent. Burlington Billet Steel is CLEAN steel!

Produced in small heats, by special methods which promote accuracy in control of quality — Burlington Billet Steel is guaranteed to meet your specifications.

The illustration at the left shows a heat being poured from our highly efficient electric furnace.

BURLINGTON STEEL CO. LTD., HAMILTON, ONT.



TEST-TUBE BABIES

FROM the test tubes of industry have come many of the jobs that keep Canada busy. Tens of thousands of Canadian men and women are at work today on jobs that did not exist in 1900. These jobs do exist today because, through research, industry has been able to develop hundreds of new products. And it has been able to make them so inexpensive that millions of people have been able to buy them.

These jobs are "test-tube babies," created in the modern research laboratories of industry. As a result, thousands of people are employed today in welding, in making and selling radios, electric refrigerators, lamp bulbs, automobiles, and hundreds of other manufactured products invented within the memory of many now living.

General Electric engineers and research scientists have contributed greatly to this progress. From the G-E Research Laboratory has come the modern electric lamp, which uses less electricity and gives more light, thereby saving the public thousands of dollars a night. From it have come the modern x-ray tube which is helping the physician save lives, and conquer disease and suffering; the high-vacuum tube which makes radio broadcasting possible; and many other developments which have created new jobs and raised the Canadian standard of living.

G-E Research Saves the Canadian Public Thousands of Dollars Annually

CANADIAN GENERAL ELECTRIC COMPANY LIMITED

Sydney • Halifax • St. John • Quebec • Sherbrooke • Montreal • Ottawa • Noranda • Toronto • New Liskeard • Hamilton • Sudbury • London • Windsor • Fort William • Winnipeg • Regina • Saskatoon • Lethbridge • Edmonton • Calgary • Trail • Kelowna • Vancouver • Victoria

September 9, 1939

THE BANK OF CANADA, OTTAWA.

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for power and light.

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The Engineer Has Given Us Safe Highways

Mechanical and Chemical Engineering Work Hand in Hand with Roadbuilders

1 While primarily the creation of highway engineers, Canada's record in road building has resulted from dovetailing the efforts of various branches of the engineering profession.

It is the general function of the highway engineer to keep pace with improvements in design and methods of highway building and to develop improvements of his own. He applies these in meeting constantly greater demand for modern highway facilities within the limits of available appropriations. He determines routes, methods of construction, types of road materials, width and extent of roads, degree of durability required. Through all this his job is to keep costs as reasonable as possible.

In performing these tasks, the highway engineer has made a real contribution to the conquest of distance in Canada; to the linking of communities and regions. But in attaining his objectives his job has been made easier, in some cases possible, by engineering competence in other fields.

The automotive engineer and rubber industry technicians have facilitated construction of roads of an economic type. Steady improvement in motor vehicle design and the advances in the precision and utility of road building have gone hand in hand. Constant improvement in auto springs, shock absorbers, tires, weight reduction and distribution, cutting out vibration, have made it possible for road engineers to keep within increasingly reasonable bounds the thickness, strength and thus cost of highways.

Today it is the volume and speed of motor traffic, rather than the necessity of building to withstand the impact of heavy, solid-tired individual units, that present the main problem.

Were it not for the auxiliary contribution of automotive engineering, the costs of modern highways, especially divided highways, express roads, and intersection grade separations, would be prohibitive.

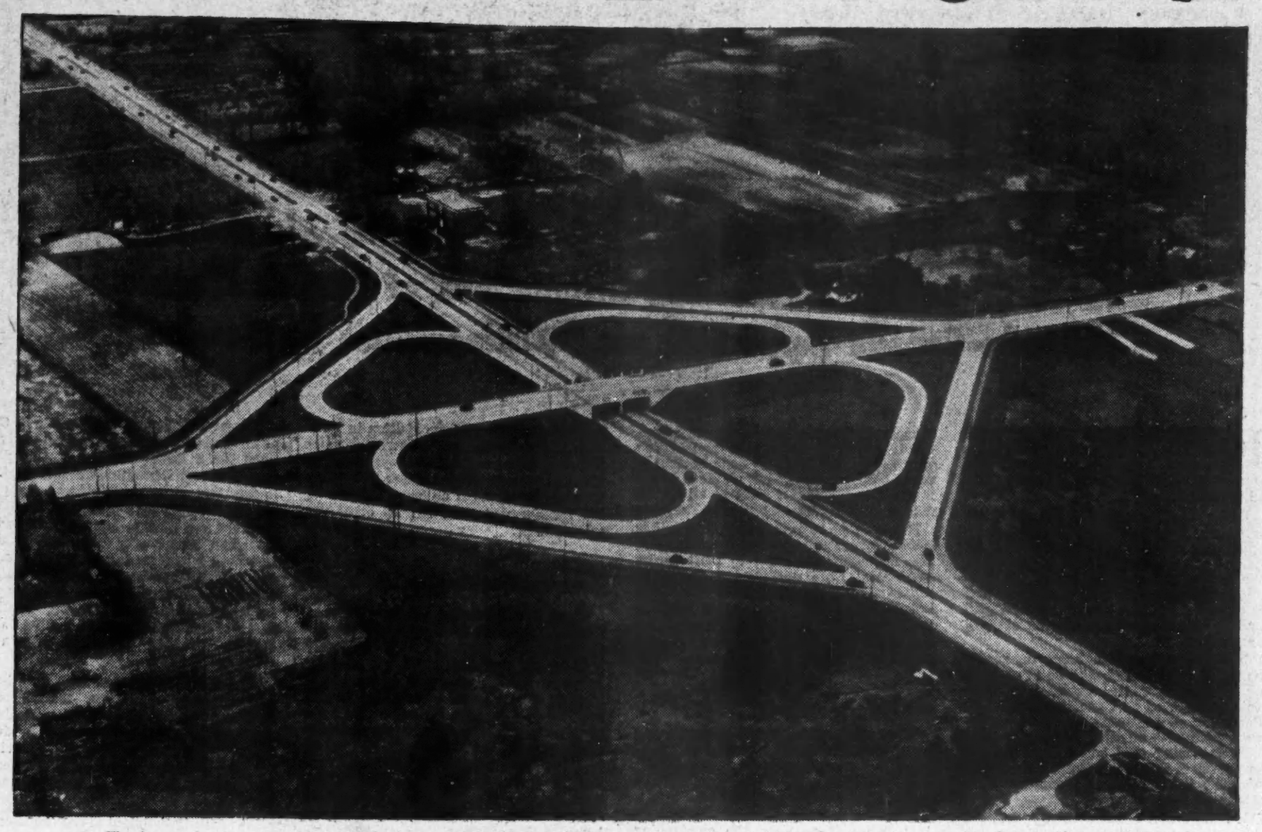
In view of all the factors involved, it is to the credit of road building agencies and their engineers that Canada's total highway mileage is 559,040 (official statistics 1937). Road surfacing has been limited to about 20% of the total, or 114,000 miles. The rest of the grand total represents earth roads, improved and otherwise, of which about 80% are in Saskatchewan (210,000 mi.), Alberta and Manitoba.

So far, about 10,000 miles of Canadian roads have been paved with concrete or other hard surfacing. Ontario boasts half the totals in both surfaced and paved highways.

In British Columbia, surfacing has been completed for only about 10,000 miles out of a total road mileage of 23,000, compared with Ontario's surfaced total of 56,000 or over three quarters of a total mileage of 76,000. But B. C. highway builders have encountered much the same troubles that beset the early railway builders, and linking up of such fine roads as B. C. has developed has been difficult. Estimated costs for roads in some areas run as high as $500,000 a mile, compared with costs of from $20,000 to $40,000 under normal conditions.

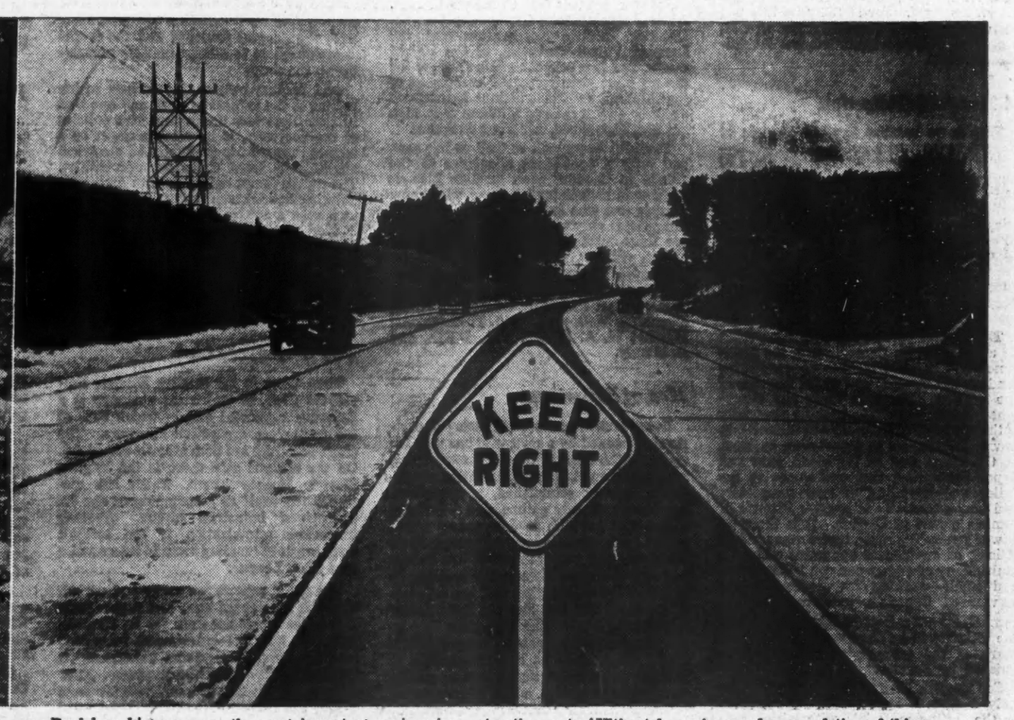
The prevailing trend of Canadian highway building was thus summed up recently by R. M. Smith, deputy minister of highways in Ontario:

"Canada is engaged in service road development and will continue to be occupied with this type for many years — roads that permit of movement from point to point without congestion. Provinces throughout the Dominion have for many years been forced through lack of funds to confine themselves to drainage, grading and structures."

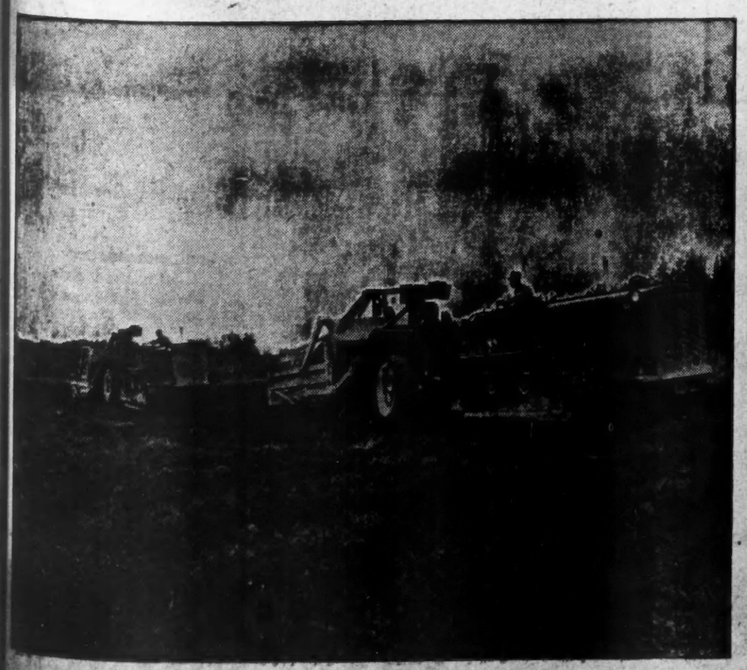


2 The impressive record of what has been accomplished in a relatively short space of time and the continuing advance of engineering practice and ingenuity bode well for the future of Canadian highway development. Throughout the Dominion programmes of extension and improvement are being launched. Old roads are being modernized and new roads built to provide the maximum of safety and speed. One of the most recent contributions of the engineer to highway building has been the clover leaf intersection by which one road is carried over the intersecting highway and a system of graded lead-ins means that turns can be made without meeting or crossing cars coming from any other direction. The only two examples so far in Canada are on the new Queen Elizabeth Way between Toronto and Hamilton. This aerial view gives a clear idea of this modern construction feat.

3 Chemical engineering has been an important factor in advancing the science of road building. Particularly in marshy districts explosives have been used not only for the clearing of a rignt of way but to speed the settlement of fill. This fill settling in itself is an engineering feat of no small proportions. The muck and soft earth is literally blown out from under after the road bed has been laid. Salt used as a stabilizer has also made an important contribution to Canadian road building since it also acts as preventive aagainst frost boils. A stretch of this salt stabilized is shown.

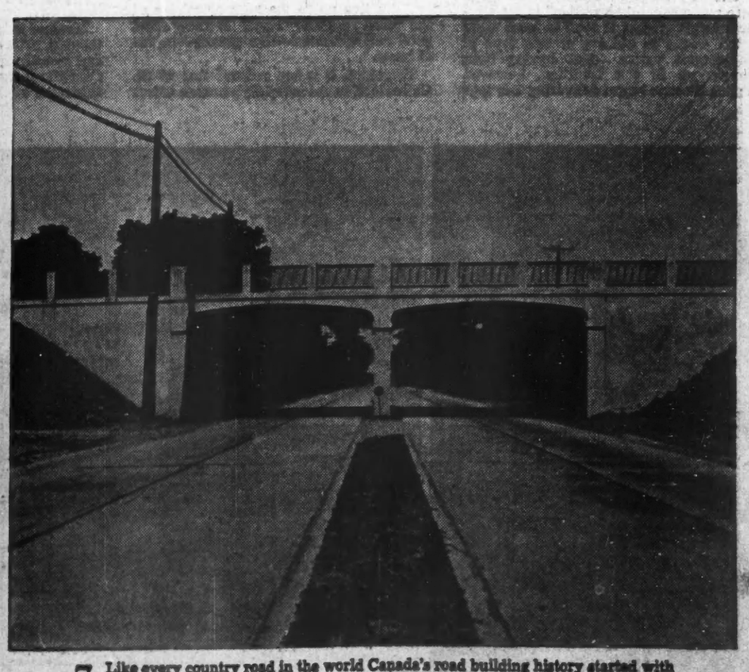


4 Dual lane highways are the most important engineering offering on the altar of safety. They are nearest approach to fool-proof traffic lanes. Their development and extension will depend primarily on the engineers' ability to reduce construction costs. Ultimately engineers plan completion of this high speed trunk highway across Ontario from Windsor to the Quebec border. This section is part of the completed link from Toronto to Hamilton.



5 Mechanical engineering has played its part in improving road building and maintenance machines and has helped the engineer to grapple with the problems of long distance and varying terrain. Where in the old days the pick, shovel and plowing crew blazed the first trail for the highway, preliminary work today is done by tractor-drawn machinery and steam or electric shovels. Development of motive and tractive power sufficient for this work has in itself opened new fields to the road builder.

6 Electrical engineering too has its place in the story of the modern highway. While highway lighting is still in its experimental stage in Canada, authorities recognize that it must be an integral part of road building if the growing accident toll is to be controlled. This section near Montreal is illuminated by two types of lighting designed by the Canadian General Electric Co.



7 Like every country road in the world Canada's road building history started with the necessity for military movement through the country. Even when these rough roads became used later for commercial purposes they were merely links with Canada's great waterways. Thus, when railway building started highway building came virtually to a halt. It was not until the era of the motor car brought the demand for hard surfacing and paving that it was resurrected. In the building of the modern highway Canada is still on the threshold.

ENGLISH ELECTRIC OF CANADA

—"a good neighbor"

Throughout the Dominion, Wherever "Electricity is the Life Force of Industry," Working Installations of English Electric Made-in-Canada Apparatus are "Distinguished by Service"

ENGLISH ELECTRIC COMPANY OF CANADA, LIMITED, is a native-born-and-bred corporate citizen of this Dominion; young, vigorous, typically Canadian through and through.

One has not far to go and, yet, paradoxically, one must travel far indeed to fully appreciate how thoroughly Canadian it is; how widespread are its roots embedded in the soil of Canadian industrial and economic progress; how well it has done and is doing its job as a "builder of Canada," and as "a good neighbor" in the national community.

In St. Catharines, Ont., occupying nearly an entire city block, is its fine plant, built by Canadians, owned entirely by Canadians, managed by Canadians, staffed by Canadians — engineers, scientists, craftsmen, workers — devising, building, testing, with searching care and infinite skill, a vast array of equipment which is the means whereby the life force of industry—electricity—is made to serve.

It is here that the famous (E) familiar throughout the industry, comes to grace the glistening surface of a fractional horsepower motor or the huge tank of a large power transformer or circuit breaker.

That symbol is no mere trade-mark in the ordinary sense; no "that-ends-it" ornamentation by a shipping clerk. On the contrary, it is an integral, meaningful part of the apparatus itself. For at the time it is put there it signifies a beginning, not an end; a promise still to be fulfilled, not the fulfilment of it.

A Two-fold Obligation

That is so because English Electric of Canada recognizes a two-fold obligation—first, to produce the most perfect piece of equipment modern design and methods can create and, second, to see that it efficiently performs the task for which it was bought and built. It regards the purchase of electrical equipment as an investment by the purchaser not only in material, labor, experience and design, but also in performance; in the ability of that equipment to keep wheels turning and production flowing smoothly.

This second part of the obligation leads us away from St. Catharines to the Maritimes, to the wide reaches of the Northland, to the Prairies and to the far side of the Rockies. For it is there and everywhere across Canada—wherever electricity is the life force of industry—in factories, in power houses, on transportation systems, at the mines and in the great pulp and paper enterprises that one comes to the fuller understanding of how completely and how essentially is English Electric of Canada a part of Canada. It is there on power generating units, transformer installations, on switchgear apparatus and on a multiplicity of motors and controllers great and small—working installations in the service of Canadian industry, that the symbol (E) reveals its real meaning, attains the ultimate in its significance as the hallmark of the company's slogan—"Distinguished by Service."

For English Electric service is as definitely a part of English Electric products as the lasting materials with which they are made; not only the service which customers expect from the apparatus itself; but also the efficient service in sales, engineering and production which they expect when dealing with English Electric. To cite an example: Not so very long ago there was a general "tradition" in the electrical industry that it took at least eight to ten weeks to build a certain type of synchronous motor. Not having been brought up in this tradition, however, English Electric began delivering this type of motor in three to four weeks. The company holds to the theory that the tradition which says, "this can't be done because it never has been done," has no place in the business world today; least of all in the field of electrical development and service.

Hence it is that to every one among English Electric's hundreds, from directing and managing personnel to most junior employees, from engineering and sales representatives of its coast-to-coast field organization to youngest plant apprentice, the (E) standard of service is as exacting a gauge of effort as that which checks the precision tooling of a motor shaft.

Accent on Youth

What with today's accent on youth, and notwithstanding the fact that its operating personnel are "graybeards" in experience, it is something to know that English Electric of Canada is, itself, just 18.

The company was organized in August, 1921, when it acquired the outstanding stock of The Canadian Crocker-Wheeler Company. And at the same time an agreement was made with The English Electric Company of London, England, whereby it represents and markets in Canada products of that noted British Organization, such as traction equipment and other large apparatus for which it is famous the world over. Also, it represents in Canada the Cornell-Dubilier Electric Corporation and the Leupold Volpel Company, of the United States, and it is sole Canadian licensee for the air blast circuit breaker equipment of the Ateliers de Constructions Electriques de Delle, of France, and Milliken type, high voltage, high speed, Air Blast Breakers.

Youthful in outlook as well as in years, and with a passionate allegiance to the "Made in Canada" idea, English Electric of Canada is captained by men who know Canada and who know that their business can prosper only as Canada prospers. Here are those men, directors of the company and its officers:

Douglas H. McDougall, president; Herbert B. Norris, vice-president; Andrew S. Tait, general manager; Gordon F. Perry, Donald H. McDougall, P. A. Thomson, Air Marshal W. A. Bishop, V.C., D.S.O., and A. Mundy.

Men of Experience

Every section of the Engineering Department is headed by a man who has won his spurs in the field of practical experience, who has brought to the organization a reputation already established, a specialized knowledge already gained, and a forward vision that led him to a company which places a premium on progressiveness. Sales engineers and representatives are chosen not only for their personality and knowledge of the application and use of electrical apparatus, but also for their ability to co-operate with others whether they be the company's engineers or the customer's staff. Only thus has English Electric of Canada come to an understanding of the customer's viewpoint, a lively appreciation of the customer's problems and an attitude of friendly co-operation which is the soundest foundation of public confidence and goodwill.

But English Electric of Canada knows that it takes more than determination to satisfactorily serve its customers in order to fully live up to the high principles of the "good neighbor" ideal. It knows that good neighborliness—like charity—begins at home.

Therefore, it is but natural that at St. Catharines, in the company's branch offices across the continent from Halifax to Vancouver, and "on the job" elsewhere in the field, one finds a capable and loyal army of men and women whose welfare as English Electric employees is no less a concern of the management than are its other responsibilities.

Insurance for Employees

There is, for instance, the group plan of life insurance adopted by the company for its employees. The premium is largely paid by the company; the small monthly payment by the employee being but a fraction of the actual cost. Also, and in addition to group life insurance, the company provides sickness and accident insurance on much the same basis, as well as hospitalization benefits. Free medical attention, too, is provided — examination, consultation and treatment in the doctor's office at the plant, and in the employee's home.

Between the company and its employees there is a degree of mutual understanding and co-operative goodwill that is unique in the sphere of industrial relations. At St. Catharines, embracing all departments and consisting of seven employees who are elected by closed ballot of all employees, a Shop Welfare Committee meets monthly with the general manager and the works superintendent to discuss matters pertaining to the shop.

And another outstanding feature which relates to the subject of staff, and one that further illustrates the constructive policies of the company, is its establishment of a training course for graduates in electrical engineering from Canadian universities. The course is not only a help to graduates entering their chosen profession, but it also serves as a source of supply of properly trained men for the company's sales and engineering departments. Graduates so trained, but for whom openings or positions cannot be found in the company's own organization, are assisted in finding suitable positions in other organizations.

The Employees Club

Then there is the English Electric Employees Club, of which the company is a generous supporter and in which 98% of the employees are active members. The club's activities are both athletic and social. On the athletic side there is the English Electric Hockey Team, which has distinguished itself as a champion of the St. Catharines' industrial league. Another front-rank organization is the softball team, while in bowling some 16 teams make up a Shop League.

The social aspects are many and varied. There is a cribbage club and a glee club. The latter meets not only for its own enjoyment, but has entertained numerous audiences and on occasion volunteers its services in the cause of benevolence. Other activities of the larger organization include a stag affair about four times a year and at least one summer picnic and an annual banquet attended by all hands. Then last, but by no means least, comes the yearly Christmas Tree celebration.

"Made in Canada"

Because it is so completely Canadian in thought, in its operations and in its outlook, and so well understands what it means to Canadians, English Electric is a stalwart champion of the "Made in Canada" cause.

It knows that more goods made in Canada means employment, wages and a livelihood for a larger number of Canadians than if the same products are imported. It knows that more Canadians at work increases the national income and, therefore, enlarges the market for the products of Canadian farms and factories. And it knows that increased employment reduces the financial burden of governments and therefore the burden upon industry and individuals in terms of taxation. Furthermore, as shareholders are virtually all Canadians, dividend payments remain in Canada.

And it fully conforms with that belief in its own buying practice. It buys "Made in Canada" goods. Every ounce of material that enters into the building of its products, in the shipping of them and the servicing of them, which can be satisfactorily secured in Canada, is obtained from Canadian sources.

As for the great plant of English Electric, at St. Catharines, it is reputedly the most modernly equipped electrical works in Eastern Canada. In 1937, growth of the company's growing business came to the point where enlargements were necessary. In consequence, two large factory additions were built, and these, together with important installations of modern machine tools, represented an extension outlay of some $300,000.

Products and Customers

Today, English Electric includes among its "Made in Canada" products synchronous and induction motors of all types and sizes; starters and controllers to go with them; generators, switchboards, power and distribution transformers, instrument transformers, metering equipment, oil and air blast circuit breakers, disconnecting switches and switchboards. All these are designed and built strictly in accordance with recognized standards of the National Electrical Manufacturers Association (N.E.M.A.)

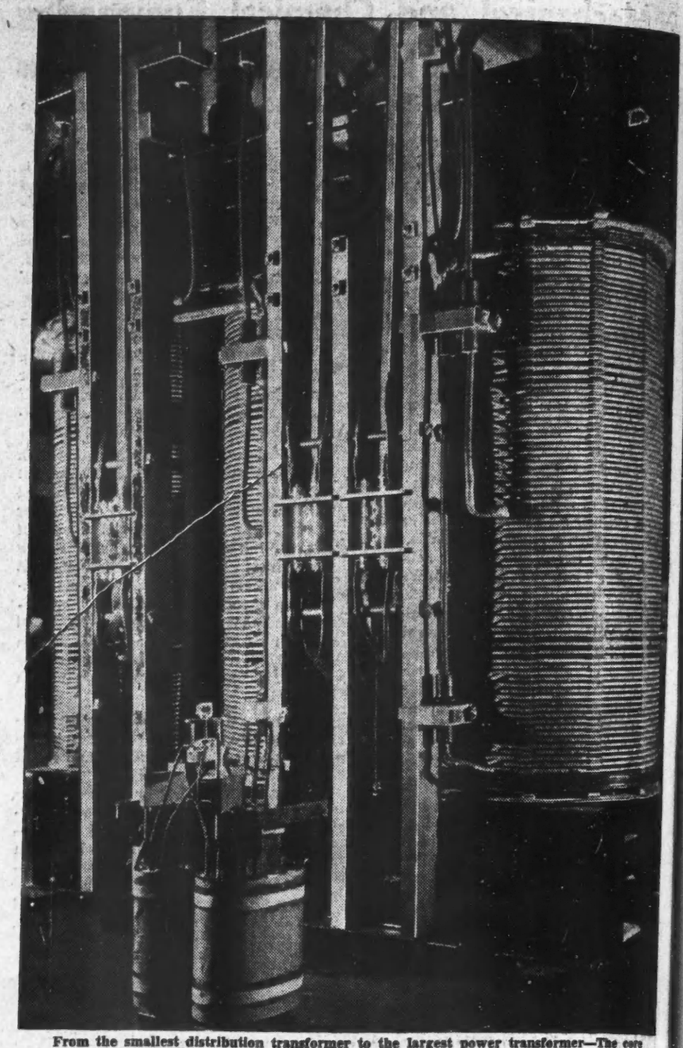
And served by the company are scores of Canada's foremost organizations in their respective fields — public utilities, mining and smelting companies, pulp and paper companies and many in other categories.

It is English Electric's fixed belief that the user of electrical equipment has the right to expect from it the highest degree of efficiency; the greatest dependability of service—not only because of the investment made in the equipment itself, but because failures and delays cost money in lost time and interrupted production schedules.

Conversely, it is constantly on the alert —as are the users of electrical equipment— for new and improved means which will increase efficiency, speed production, save time and cut costs.

The success achieved by English Electric Company of Canada is attributable to its ability and its determination to meet both of these demands.

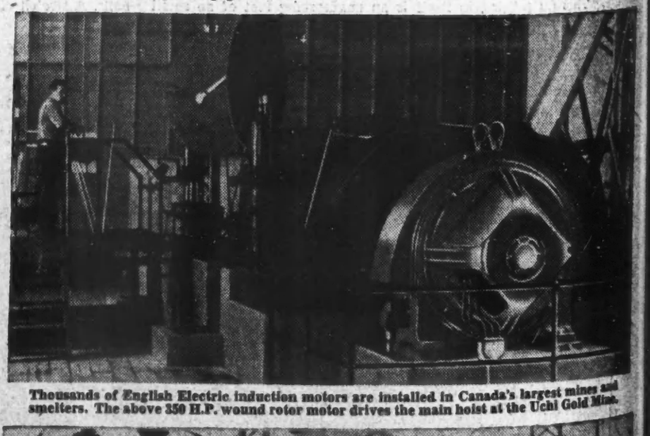
No. 15 in a series of studies in corporate citizenship appearing in The Financial Post through co-operation of leading Canadian business institutions.



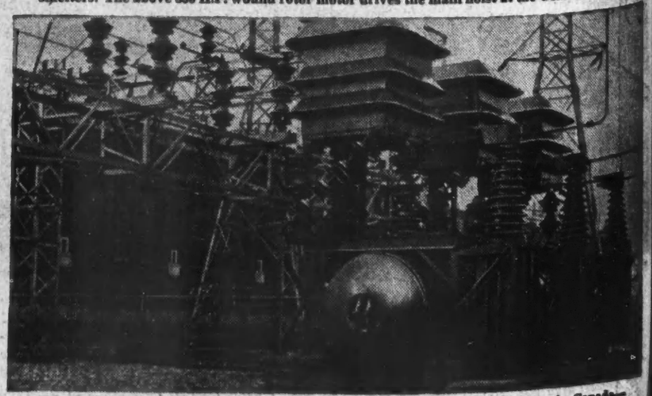
From the smallest distribution transformer to the largest power transformer—The core and coils of a 3 K.V.A. distribution transformer compared with those of a 12,000 K.V.A. power transformer.

Even the largest motors are built at St. Catharines—Winding the stator of a 2,500 H.P. Synchronous Grinder Motor for installation in a Quebec paper mill.

The public utilities use "English Electric" apparatus—A 15,000 volt circuit breaker installed at Merrition, Ontario.

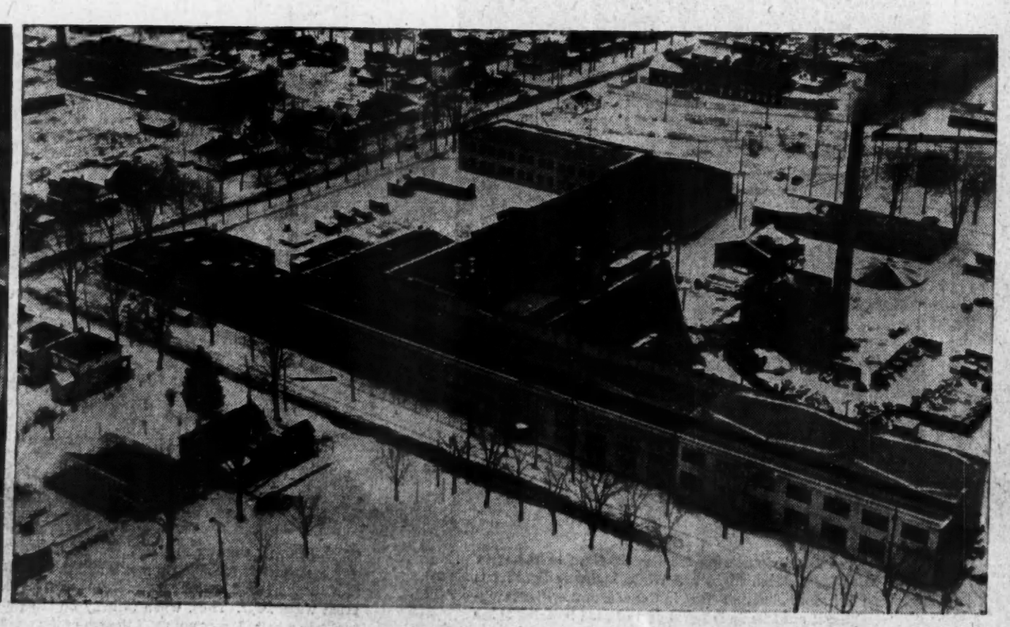


Thousands of English Electric induction motors are installed in Canada's largest mines and smelters. The above 350 H.P. wound rotor motor drives the main hoist at the Uchi Gold Mine.



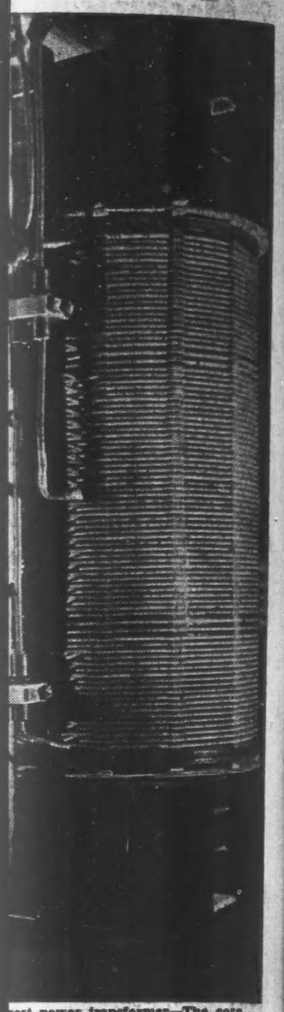
English Electric has pioneered the development of air blast circuit breakers in Canada—A 138,000 volt air blast unit built at St. Catharines and installed at Beauharnois.

Only modern manufacturing processes are employed by English Electric—Grit blasting transformer tanks in the large Pangborn grit blaster.

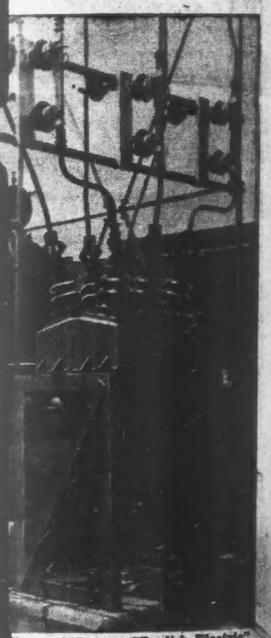


The modern plant of English Electric Company of Canada, Limited, occupying almost an entire block in the City of St. Catharines and said to be the most modernly equipped in Eastern Canada.

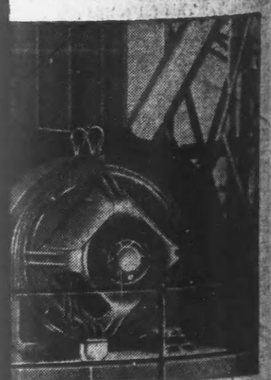
ADA



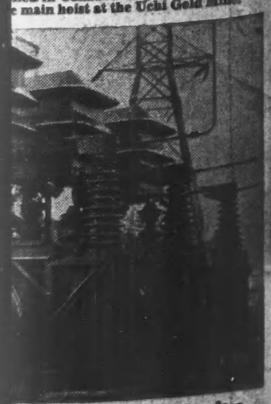
est power transformer—The core
red with those of a 12,000 K.V.A.



lic utilities use "English Electric"
lus—A 15,000 volt circuit breaker
stalled at Merritton, Ontario.



lled in Canada's largest mines and
e main hoist at the Uchi Gold Mine.



last circuit breakers in Canada—
nd installed at Beauharnois.

THE FINANCIAL POST
TORONTO, SEPTEMBER 9, 1939

—Montreal Light, Heat and Power photo.

The Engineer Has Given Us WATERPOWER

1 Power is the basic tool of modern industry. Low cost power is the key to industrial supremacy. Waterpower is Canada's basic power tool.

Canada's waterpower resources aggregate over 43,000,000 horsepower, only 20 per cent of which has been developed. These developments to date represent an estimated capital investment of $1,640 millions.

More than 87 per cent of Canada's harnessed waterpower is found in central stations generating electricity for distribution and sale to domestic, municipal, commercial and industrial consumers and more than 98 per cent of the electricity generated by central electric stations is derived from waterpower.

Waterpower supplies 80 per cent of the energy operating all secondary industries in Canada.

Pulp and paper manufacturing in Canada uses 1,800,000 horsepower. Canada leads the world in newsprint manufacturing, supplying 40 per cent of world production.

Low-cost hydro-electric energy gives economic value to low-grade ores and enhances the value of high-grade ores. More than 800,000 hydraulic horsepower is used in the Canadian mineral industry.

Low-cost hydro-electric energy has brought entirely new Canadian communities into being such as the important industrial centres at Shawinigan Falls and Arvida in the Province of Quebec.

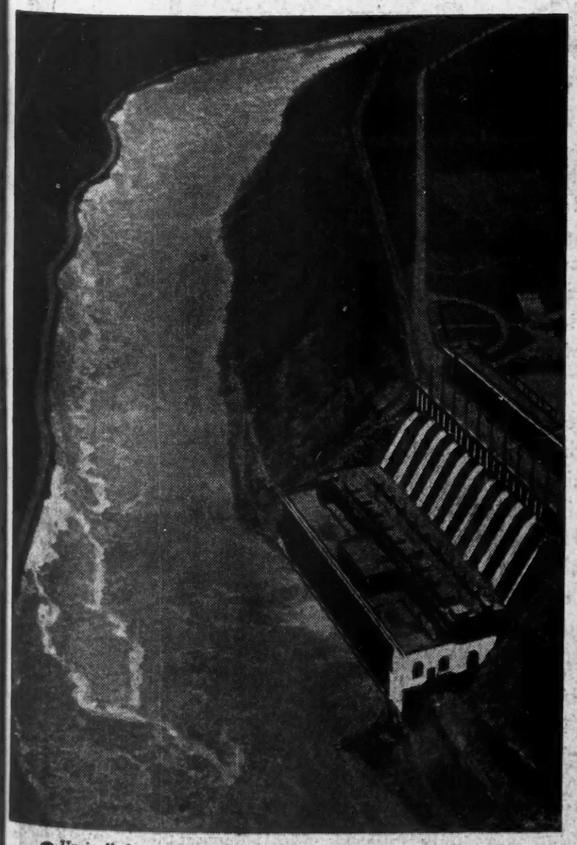
More than 62 per cent of Canada's population have electric service in their homes. Low-cost electricity is widely used for domestic cooking and water heating and for a wide variety of household appliances.

Last year Canadian consumption of electricity produced in central electric stations was 24.2 million kw.h., of which over 98 per cent was generated from waterpower.

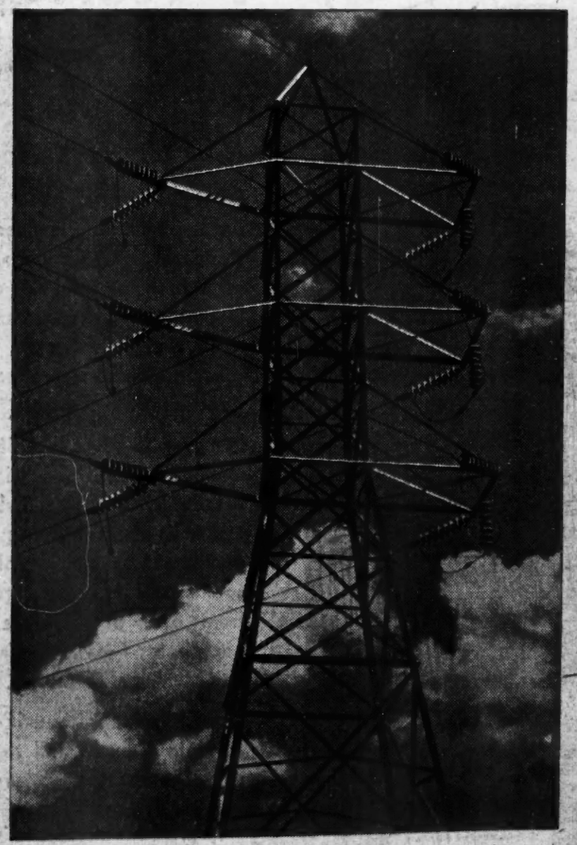
In no other country has there been as much pioneering in all phases of the hydro-electric art. Niagara is not only the Mecca of the international tourist, it is the greatest hydro-electric engineering laboratory in the world.

For the same reason, and only slightly less important, are the justly famous hydro-electric developments of the St. Maurice, the Saguenay, the Gatineau, the Ottawa, the St. Lawrence and other rivers.

Canada is richly endowed with waterpowers, and their development has been due largely to the imagination, initiative and technical ability of the engineer.

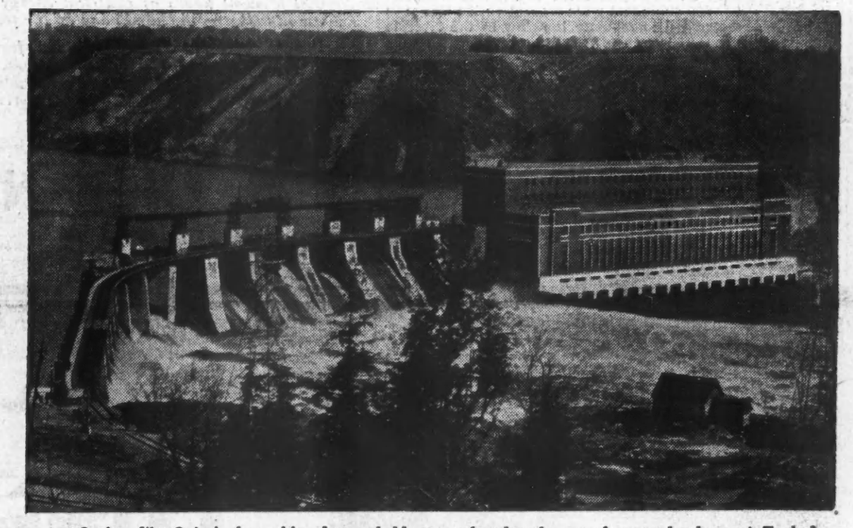


2 Unrivalled as an engineering achievement in waterpower development is the Queenston-Chippawa plant at Niagara with its 500,000 h.p. capacity. The power house of 590 feet long houses ten main units and two service units operating under a head of 294 feet. Operating since 1922 it is the big chief of Ontario's Hydro Electric Commission developments which serve 800 municipalities as well as 100,000 rural consumers. The power-at-cost principle has been an important if not the chief factor in the development of Ontario as Canada's greatest industrial province.



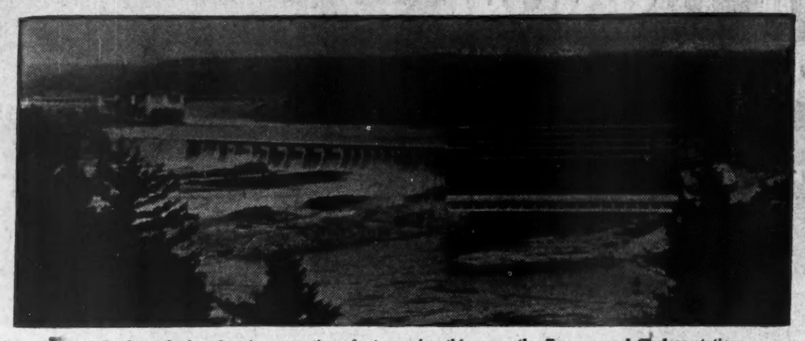
3 Canadian engineers are pioneers in the long distance transmission of electrical energy. When Decew Falls development was mooted in 1898, the scientific world said it was crazy to think of carrying power 33 miles to Hamilton. Today Toronto gets its power from the Ottawa river 300 miles away. The secret to this high voltage long distance transmission lies in the engineering laboratory where materials for current carrying and insulation have been selected in efforts to cut transmission losses. These engineering achievements have meant life to Northern Ontario where mines depend on water power for low cost recovery.

4 At the beginning of this year total turbine installation in Canada was 8,190,772 h.p. This is equivalent to 731 h.p. per thousand of population, more intensive development than that of any other country in the world. It would require 38 million tons of coal to produce the same power that these giant, water driven turbines are capable of generating in a year.



5 Quebec, like Ontario, has achieved remarkable waterpower development. The present installation of the province represents more than 49% of the total for Canada. Electro-chemical and electro-metallurgical industries have grouped themselves largely around power development. Typical of this development of industrial power is the La Gabelle plant of Shawinigan Water and Power Co. on the St. Maurice river. It has a capacity of 166,000 h.p.

6 Some of the largest developments in the Ottawa valley have been accomplished by engineers of the Gatineau Power Co. These include three large plants on the Gatineau River at Chelsea, Farmers and Paugan Falls. They were brought into operation in 1927-28.



Two of the large hydro-electric generating plants serving this area—the Farmers and Chelsea stations on the Gatineau River with a combined capacity of 266,000 horsepower installed and in operation. There is space for an additional generator—a 24,000 horsepower unit at Farmers.

Co-ordinating an Entire River to Man's Use

"In boldness of conception and speed from start to finish, the development of the Gatineau River was undoubtedly a wonderful accomplishment. Practically the whole river, from its mouth to its source, including the two large storage reservoirs, Mercier and Cabonga, was developed as a single project and in a remarkably short period of time from its original conception until the delivery of power"—

Comment of an independent engineer.

FOR centuries the powerful, turbulent Gatineau River awaited development.

Rising in northern Quebec and draining an area of 10,000 square miles, the Gatineau River flows southward 275 miles to its confluence with the Ottawa River, opposite the City of Ottawa, the capital of Canada.

Like all rivers draining into the St. Lawrence River basin, the Gatineau was subject to high spring flows, followed by summer lows. This variation in flow ranged between 75,000 and 2,000 cubic feet per second.

Twelve years ago two great storage reservoirs with an aggregate rated capacity of 145,000,000,000 cubic feet were created on the Gatineau watershed to regulate the flow of the river to about 10,000 cubic feet per second.

Simultaneously three hydro-electric plants were constructed at Farmers, Chelsea and Paugan, having a designed capacity of 562,000 h.p., and an actual installation of 504,000 h.p. Interconnected with these plants are eleven other plants on the Ottawa, Nation, Rouge, North, Ouareau and other tributaries of the Ottawa River.

In addition, Gatineau Power Company has plants at Temiskaming and Thurso, P.Q., and at Grand Falls and Dalhousie, N.B., bringing the total installation up to 725,634 h.p.

The Gatineau and inter-connected system serves approximately 24,000 industrial, residential and farming customers along the Ottawa River between Campbell's Bay, the City of Hull and the Island of Montreal.

In 1938 this Company produced 2,702,441,000 kilowatt hours of electrical energy for use in industry, the homes and on the farms.

Industry has been stimulated and further expansion is in prospect with abundant, efficient and dependable power available at reasonable rates throughout the territory served by Gatineau Power Company.

GATINEAU POWER COMPANY

OTTAWA, CANADA

BUILDERS, ALL!

Builders of Canada! Here's to the men and women pioneers who cleared the land and tilled the soil long ago; to the Fathers of Confederation who welded the Dominion into a solid whole; to those industrial leaders and others whose foresight, enterprise and patriotism have contributed largely to Canada's greatness.

Today the Dominion occupies a leading position among the nations of the world in value of natural resources and commercial accomplishment. We take pride in the fact that our organization has grown with Canada and that, through its service to industry, it can rightly take its place among the nation's builders.

Designers and Manufacturers
of

MODERN POWER TRANSMISSION EQUIPMENT
CONVEYING AND ELEVATING EQUIPMENT
COAL AND ORE HANDLING BRIDGES
WELDED PROCESSING EQUIPMENT
STEAM GENERATING EQUIPMENT

UNITED STEEL CORPORATION
LIMITED

TORONTO . . WELLAND — DODGE MANUFACTURING DIVISION — CANADIAN MEAD MORRISON — MONTREAL . . WINNIPEG

HAILEYBURY, ONT.
BOX 449 - G. A. FERRIER

KIRKLAND LAKE, ONT.
BOX 968 - PHONE 1017 - K. G. MITCHELL

(Left). The terrific heat of the open hearth furnaces changes pig iron (and other ingredients) into steel.

(Above). Blooming mill: here the white-hot ingot is reduced to a "bloom" and "billets" for rolling bars, shapes, rods or sheets.

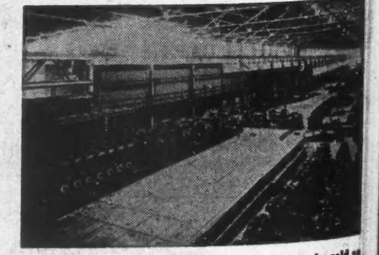
(Left). Blast furnace: where the primary operations take place in the reduction of ore into pig iron.

STELCO . . . serves the ENGINEER with quality STEEL products vital to his work

Steel has been an important factor in the development of engineering work and standards. Our facilities embrace means of furnishing steel in countless forms. Blooms, billets, sheets, bars, bolts and nuts, rivets, wire, fence, nails, tacks, and many other dependable products are manufactured in ten Stelco plants.

For over 25 years, The Steel Company of Canada has kept pace with every advance in the science of steel making. It incorporates in its plants the newest in methods and equipment, pays millions of dollars in wages; spends millions in the purchase of supplies from over 500 Canadian sources; contributes heavily to Federal, Provincial and Municipal Treasuries.

STELCO, and all that it stands for, is an asset to Canada and to the engineering profession. Our metallurgists are ever at your service.



Bar mill: where billets are rolled into bars to be sold as such or further processed in various manufacturing operations.

Sheet mill: here "sheet bars" produced by the blooming mill are reheated in furnace and rolled into steel sheets.

THE STEEL COMPANY OF CANADA, LIMITED

HAMILTON - EXECUTIVE OFFICES - MONTREAL

SALES OFFICES: HALIFAX, ST. JOHN, QUEBEC, MONTREAL, OTTAWA, TORONTO, HAMILTON, LONDON, WINDSOR, WINNIPEG, VANCOUVER

WORKS: HAMILTON, MONTREAL, TORONTO, BRANTFORD, LONDON, GANANOQUE

Rive

Favorable topography, am
well-distributed precipitati
innumerable lakes and ri
combine to provide Canada
wealth of waterpower resou
These resources are capable
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Major Economic Force

A survey of all the major
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Canada's waterpower resour
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survey of the industry as a w
All sections of the Dominio
shared in the development
shown in the following table

(As at Jan. 1, 1939)

	Minimum Flow in H.P.	In
B. C.	1,931,000	
Alta.	380,000	
Sask.	542,000	
Man.	2,300,000	
Ont.	5,330,000	2,
Que.	8,459,000	4,
N. B.	60,600	
N. S.	20,000	
P. E. I.	3,000	
Yukon	294,000	
Total	20,347,400	8,

It will be noted from the
ing table that Canada is fortu
having large waterpower re

Steam

More than 98% of the el
energy generated in Canada
water power, a condition whic
to minimize the important
that have been made in the d
ment of other sources of
power.

Fuel power plays an im
part in certain sections of the
try, particularly in the M
Provinces and in Alberta and
atchewan where native fue
readily available.

With the development o
transmission, fuel stations
largely superseded. This
marked the early growth
power industry in Ontario an
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and where an abundance of
ably situated water power stimu
the development and transmission
hydro-electric power. It has been
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transmission systems.

Advance of technical kno
and the greatly increased eff
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fuel power again to the fore. I
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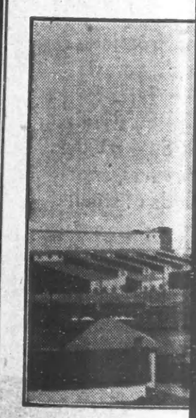

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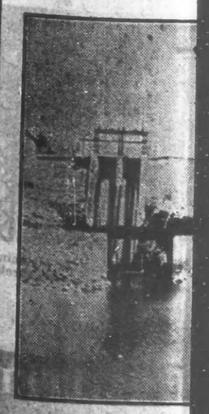


Paugan Falls' Powe
built

River Demons Tamed

Nearly 80 Per Cent of Waterpower Turns Canada's Factory Wheels

Favorable topography, ample and well-distributed precipitation and innumerable lakes and rivers all combine to provide Canada with a wealth of waterpower resources.

These resources are capable of furnishing a dependable flow of low cost hydro-electric energy to practically every centre of population in the Dominion and for the development of the industries of mine and forest in the great hinterland.

Major Economic Force

A survey of all the major hydro-power undertakings in the Dominion or those involving some notable engineering accomplishment, would mean the listing of practically every plant in the Dominion. What the engineer has done in developing Canada's waterpower resources, and the latter's important place in the social and industrial life of the country, may be gathered from a brief survey of the industry as a whole.

All sections of the Dominion have shared in the development, as is shown in the following table:

(As at Jan. 1, 1939)

	Minimum Flow in H.P.	Turbine Installation H.P.
B. C.	1,931,000	738,013
Alta.	380,000	71,997
Sask.	542,000	61,035
Man.	3,309,000	420,925
Ont.	5,330,000	2,582,959
Que.	5,459,000	4,031,063
N. B.	68,600	133,347
N. S.	20,800	130,617
P. E. I.	2,000	2,617
Yukon	294,000	16,199
Total	20,347,400	8,190,773

It will be noted from the foregoing table that Canada is fortunate in having large waterpower resources in sections which are devoid of coal and other fuels which could be used for the production of electrical energy. Moreover, the development in those areas has been much greater than in the provinces which have coal and other fuel resources. Ontario and Quebec are outstanding examples of this.

This widespread availability of low priced power resource has been the basis of a remarkable development which has brought Canada from almost a purely agricultural country to one of outstanding industrial importance.

Of the Prairie Provinces, Manitoba has the greatest power resources and the greater development, 75% of the total hydraulic development of the three provinces being installed on the Winnipeg River to serve the city of Winnipeg and adjacent municipalities and over the transmission network of the Manitoba Power Commission, more than 100 cities, towns and villages south of Manitoba. In the districts containing least waterpower, the southern portions of Alberta and Saskatchewan, there are large fuel resources.

British Columbia, traversed by three distinct mountain ranges, ranks fourth in available power resources and her hydraulic development is exceeded in only Quebec and Ontario.

The waterpowers of the Yukon and North West Territories, while considerable, are so remote from markets as to limit their present commercial development to local mining uses.

The annual census of the central electric station industry conducted by the Dominion Bureau of Statistics in collaboration with the Dominion Water and Power Bureau provides data for an interesting analysis of the disposition of the power generated by central electric stations.

As the output of the hydro-electric stations represents 98% of the total, the inclusion of the output of fuel power stations has little effect upon the average as quoted.

According to the latest figures available, those for 1937, Canadian central stations generated a total of 27.7 million kw.h., of which 1.8 million kw.h., or 6.7% was exported to the United States.

Aid to Industry

Including a small import from the United States, 1.3 million kw.h., there was a total of 25.3 billion kw.h. for distribution in Canada. Of this 7.8% was sold for farm and domestic use; 3.7% for commercial lighting; 2% for small power use (less than 50 kw. per customer), 76.7% for large power purposes and less than 1% for street lighting.

The pulp and paper industry is the chief customer for large power, purchasing during 1937 more than ten and a quarter billion kw.h. or 60% of all industrial power sold. Of the power so purchased more than five and one third billion kw.h. were used for raising steam in electric boilers.

More than 98% of the electricity generated by central electric stations in Canada is derived from waterpower.

Canada's Modern Roads

Roads being constructed in Canada of the modern type are superior in alignment and grade to those of any other country in opinion of R. M. Smith, deputy minister of highways in Ontario. They have the advantage of newness. They have been developed in the age of the motor car and have been constructed with high-speed requirements in mind.

While England, France, Germany, Belgium and Italy are advocates of modern highway development, there are in these countries, thousands of miles of tortuous, narrow roads, dating back to earliest history. Nor does their surfacing meet the requirements of modern travel.

Low Cost Power

Vast Mine Development Follows Cheap Electricity for the Mines

From the union of hydro-electric and mining engineering, Canada has reaped rich rewards.

Frontiers have been pushed back in great areas otherwise doomed to remain entirely wilderness. Rich and growing markets have been opened up for commerce. The Dominion has become one of the great gold and metal producing areas of the world. The mining industry has proved a powerful stabilizing factor on the whole Canadian economy.

Low cost power literally "makes" ore. With total mining costs of, for instance, $6.50 per ton it may be profitable to mine drifts only 10 ft. wide. But lower costs, say $5.50 per ton, may make it profitable to mine those drifts to 20 ft.

Dozens of rich producing mines of today could not have become profitable operations without hydro-electric power. The great Sullivan mine, the mainstay of the Consolidated Mining & Smelting Co.'s business had to have low cost power for the electrolytic treatment of its complex lead-zinc ores.

Mines Wait For Power

Uchi mine, the J. E. Hammell operation which just got into production a few months ago, lay dormant for a whole decade partly because low-cost electric power was not easily available. Howey Gold Mines, with its low-grade ore could not have prospered without low-cost power. Young Davidson is another example of the same thing. At this mine a giant electric shovel, one of the largest on the continent, scoops out very low-grade muck and gives the operating company, Hollinger, a profit. Norbeau, Noranda subsidiary, a promising new metal property, is inactive because low-cost electric power has yet to be developed in the area. Argosy Gold Mines was virtually forced into liquidation because of high power costs. Electricity was not available and money went for power rather than into reserves or development work.

"Canada's Rand," the 100-mile strip from Timmins, centre of the Porcupine camp in the west, to the town of Bourlamaque in the camp of the same name is by far the richest mining area yet developed in Canada. This golden way is, in most places, comparatively narrow, with most of the producing mines close on either side of the highway. This makes for economical power line construction and maintenance.

Canada Northern Power

Big supplier of electric power through this area is Canada Northern Power Corp. Ltd., a subsidiary of Power Corporation of Canada. Canada Northern itself has two subsidiaries, Northern Quebec Power Co. Ltd. and Northern Ontario Power Co. Ltd.

So rapid has this growth been, that Canada Northern has had to purchase an increasing amount of power from its competitor in the Ontario mining area, the government-owned Hydro-Electric Power Commission. During 1938, purchases totalled some 40,000 h.p.

As a government-owned enterprise, the H.E.P.C. has had the major share of pioneering in the mining area. With 12 plants through northern Ontario, the H.E.P.C. is producing about 407,000 h.p. The largest plant is at Abitibi Canyon, and the Cameron Falls and Alexander plants, both on the Nipigon River in the Thunder Bay area. Much water power has still to be harnessed. The latest estimate based only on waters actually surveyed, is almost two million horsepower.

In Manitoba, Winnipeg Electric Co. is the large supplier of power, and now has lines to Central Manitoba, San Antonio and Gunnar Gold Mines. In April, 1938, the company completed an 82-mile transmission line stretching east from the Seven Sisters Falls across the Ontario boundary into Kenora. The new Kenricia mine takes power from this line. While not a great deal of development has been done in this area in recent years, it is possible that mine demand on this line will show important increases in coming years.

Manitoba's largest mining enterprise is Hudson Bay Mining and Smelting Co. Ltd. far north on the Manitoba - Saskatchewan boundary. Through a subsidiary, Churchill River Power Co., it develops power for its own needs, for sale to the town of Flin Flon and to neighboring mining properties, notably Sherritt Gordon. Recent increases to the plant, located about 58 miles northwest of the mine, raise capacity to around 90,000 h.p.

Largest electric power producer for mining in British Columbia is the West Kootenay Power and Light Co., Ltd., subsidiary of Consolidated Mining and Smelting Co. of Canada Ltd.

Steam Power Plays its Part

More than 98% of the electrical energy generated in Canada is from water power, a condition which tends to minimize the important strides that have been made in the development of other sources of electric power.

Fuel power plays an important part in certain sections of the country, particularly in the Maritime Provinces and in Alberta and Saskatchewan where native fuels are readily available.

With the development of high transmission, fuel stations were largely superseded. This change marked the early growth of the power industry in Ontario and Quebec where no native fuels existed and where an abundance of favorably situated water power stimulated the development and transmission of hydro-electric power. It has been a more recent development in Manitoba and Alberta following the development of three very extensive transmision systems.

Advance of technical knowledge and the greatly increased efficiency of equipment, however, has brought fuel power again to the fore. In many important sections where it will remain unchallenged for many years to come.

Among fuel electric stations generating primary power the outstanding installations, according to a survey of the Dominion Water and Power Bureau of the Department of Mines and Resources, are found in Nova Scotia, New Brunswick, Saskatchewan and Alberta.

In Nova Scotia the Seaboard Power Corp. which operates the power plants of the Dominion Steel and Coal Corp. has a large steam turbine installation in the Sydney-Glace Bay area. Acadia Coal Co. has 9,000 h.p. in steam turbines at Stellarton and the Canada Electric Co. 19,000 h.p. in steam turbines at Amherst.

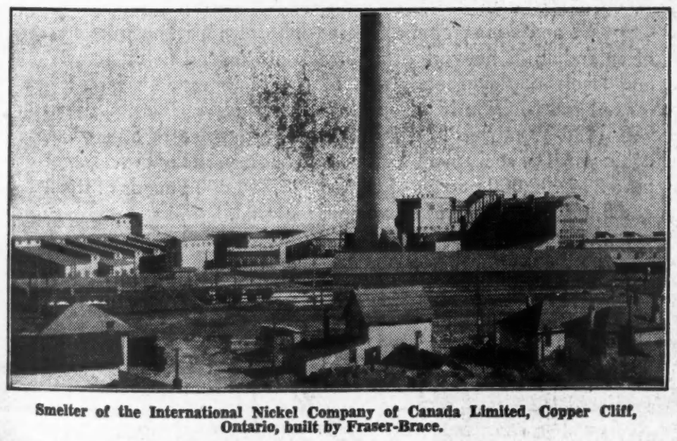
In New Brunswick the New Brunswick Electric Power Commission has a steam turbine station at Grand Lake with 16,330 h.p., while the New Brunswick Power Co. has a 13,700 h.p. steam turbine and a 2,900 h.p. reciprocating engine installation in Saint John. Canadian International Paper Co. has a 16,750 steam turbine installation at Dalhousie to supplement its hydro supply from Grand Falls.

In Saskatchewan the National Light and Power Co. has a 31,265 h.p. steam turbine installation at Moose Jaw; the Saskatchewan Power Commission a 27,033 h.p. steam installation at Saskatoon, a 3,900 h.p. steam turbine and 950 h.p. reciprocating installation at North Battleford, and 6,050 h.p. in various internal combustion engine plants throughout the province.

Regina has a 46,619 steam turbine installation; Canadian Utilities 4,000 h.p. in steam turbines at Prince Albert and 4,679 h.p. in various internal combustion plants. Dominion Electric Power has a 3,780 kv.a. steam turbo at Estevan and 4,360 h.p. in internal combustion engines at various stations.

Alberta Uses Fuel

In Alberta the City of Edmonton has an installation of 1,560 h.p. in steam engines and 31,100 h.p. in steam turbines; the City of Medicine Hat 8,350 h.p. in steam turbines; the City of Lethbridge 750 h.p. in reciprocating engines and 7,300 h.p. in steam turbines and Canadian Utilities 5,300 h.p. in steam turbines at Drumheller.

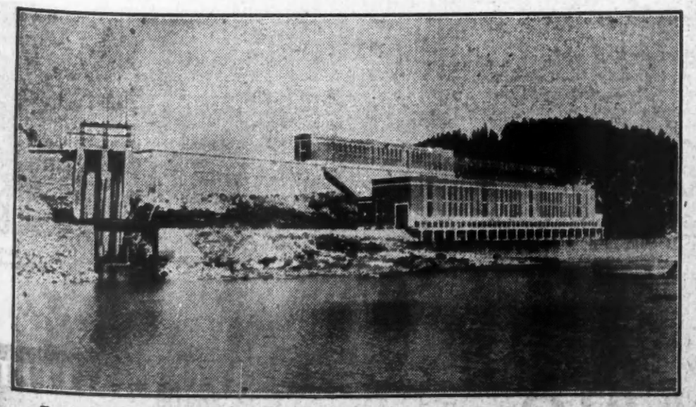


Smelter of the International Nickel Company of Canada Limited, Copper Cliff, Ontario, built by Fraser-Brace.

FRASER-BRACE ENGINEERING COMPANY LIMITED

Construction Engineers

HEAD OFFICE - 107 Craig Street West - MONTREAL



Paugan Falls Power Plant, one of the three developments on the Gatineau River, built by Fraser-Brace for the Gatineau Power Company.

Shawinigan Falls power houses are the centre of the Shawinigan system. Here the initial work of The Shawinigan Water & Power Company was commenced at the beginning of the present century, an enterprise which has played an important part in the industrial life of the Province of Quebec in the intervening period. During the years of its existence the Company has been a pioneer in many phases of electrical engineering and has done much to advance the practical application of electricity. Researches in chemistry made by the Company have resulted in building up a chemical industry of importance at Shawinigan Falls, where calcium carbide and many ex-acetylene products, including acetic acid, are manufactured.

A WORLD OF POWER

WITH vast natural water-power resources at its command, The Shawinigan Water & Power Company ranks as one of the largest hydro-electric enterprises on the North American continent. Serving a large section of the industrial area of the Province of Quebec, it has become, during the forty years of its existence, a major factor in the Province's industrial and commercial progress.

From power generated at its principal plants on the St. Maurice River and from power purchased from other producing companies, The Shawinigan Water & Power Company distributes more than 1,000,000 horse-power to customers throughout its territory. Undeveloped power sites available will eventually provide an additional 1,000,000 horse-power, giving the Company a potential capacity of 2,000,000 horse-power, one of the largest in the world.

The main source of Shawinigan's power is the St. Maurice River, which has a fall of some 1,300 feet in its course of 240 miles from headwaters in the Laurentian Highlands to the St. Lawrence River. Natural drops in the river, advantageously spaced for power development, provide ideal sites for the Company's major developed power plants at Shawinigan Falls, La Gabelle, Grand'Mere and Rapide Blanc. Together these plants have an installed capacity of 856,050 horse-power. There is also installed capacity of 30,350 horse-power at sites other than on the St. Maurice. Additional power is purchased under firm contract from other companies, bringing Shawinigan's total deliverable power (generated and purchased) to over one million horse-power.

Under governmental direction, the St. Maurice River is regulated by the Gouin Dam at its headwaters at La Loutre, impounding approximately 225,000,000,000 cubic feet of water and creating one of the largest artificial reservoirs in the world. Other storage dams at Taureau Rapids on the Mattawin River and on the Manouan River impound more than 50,000,000,000 additional cubic feet of water.

Indicative of the growing industrial development in the Province of Quebec has been the consistent rise in the demand for power over a number of years, which The Shawinigan Water & Power Company has met by having always available an adequate supply of low-cost energy. In this connection the Company is proceeding with the construction of a power house at La Tuque on the St. Maurice River. This plant is to have an installed capacity of 162,000 horse-power developed from a head of 104 feet.

Approximately 56% of Shawinigan's total power output is absorbed by diversified manufacturing and commercial enterprises in the Province of Quebec. About 44% is taken by the pulp and paper industry, which, under the stimulus of low-cost power, has developed into one of Quebec's major industrial interests. A relatively small portion of the Company's output is sold directly at retail. One of Shawinigan's largest customers is Montreal Light, Heat & Power Consolidated, which supplies the light and power required on the Island of Montreal. The world-famous asbestos producing territory, located seventy miles south of the St. Lawrence River, is provided with power from the Shawinigan plants.

The distributing system of The Shawinigan Water and Power Company comprises more than 5,300 miles of transmission lines, spreading a network throughout 16,000 square miles of the industrial and commercial section of the Province of Quebec. Excluding the Island of Montreal and district of Quebec, the Company serves 441 towns and communities. Total customers, including those supplied through municipal systems and privately owned companies using Shawinigan power, exceed 75,000.

A pioneer in the development of the electro-chemical industry of Shawinigan Falls, the Company has also attracted many other power-using industries to this important industrial centre. Shawinigan Chemicals Limited, operating as a subsidiary, is a major enterprise manufacturing chemicals derived from acetylene gas, chiefly acetic acid. It is a large consumer of power supplied by the parent company.

The SHAWINIGAN WATER and POWER COMPANY

MONTREAL ~ ~ CANADA

From Horse Car to High Speed

Fifty Years Has Seen Rapid Advance in Urban Transport

The normal daily lives of 80% or more of the people of Canada's larger cities are directly dependent upon the progress achieved by urban transport since in its beginnings just over 50 years ago. In that progress and in its continuing contribution to modern standards of urban life in Canada, engineers and engineering have played a particularly vital part.

Indirectly, the value of urban transportation and its engineering Aladdins has extended far beyond the millions whose daily activities the industry makes possible.

Its essential function is, of course, the mass movement of city populations in their work and social pursuits. But in addition it has played a leading rôle in facilitating the growth and development of urban centres in this country.

Without rapid and economical mass transportation, evolution of the commercial, industrial and social concentrations of our larger cities would have been physically impossible. Urban attainments in Canada would have been limited to comparatively small centres.

It may thus be said that urban transportation, as it has extended and improved over the past half century, has given a broad community and national service. In large degree the industry has helped to maintain the modern amenities and foster the national progress that give Canada high rank in world comparisons.

In this accomplishment, and in periodic forward steps to keep pace with changing conditions, the industry has had to rely to a major extent upon engineering progress, administrative direction and operating competence. The story of urban transport's advance to keep pace with rapidly growing and changing demands upon it, is largely the record of engineering achievements in regard to equipment, street and plant facilities, operation and maintenance.

The vast improvement of equipment and periodic devising of new types of rolling stock, have been almost entirely an engineering accomplishment. But the engineer has also played a leading rôle in the plant construction and operating fields. On the staff roster of the Toronto Transportation Commission, for instance, there is an engineer for every 110 employees.

This ratio, believed to be fairly indicative of urban transport systems throughout Canada, compares impressively with reliable studies which set the ratio for industry as a whole in the Dominion at 1 to 120.

Draws on Many Branches

Importance of engineering in urban transport is also reflected in the number of divisions of the profession which contribute to both development and operations. At least half a dozen different classes of engineer are essential to the industry's operations, including electrical, mechanical, civil, structural, automotive, traffic, and traffic-research engineers.

The essential function of the engineer in the industry is further indicated by the number of men drafted from various branches of the profession for administrative posts.

The hand and brain of the engineer have been dominating factors right from the beginning in the successive phases of urban transport development, as the industry grappled with steadily heavier and more complex problems. It was an engineer, Van Depoele, who designed, built and operated what is recognized as the first adaptation of electricity to commercial rail transport operation.

While only half a mile long, this first electric railway on this continent and the nucleus of modern urban transport was built away back in 1884 to connect the old horse car service with the Toronto Exhibition grounds.

Canada in the Lead

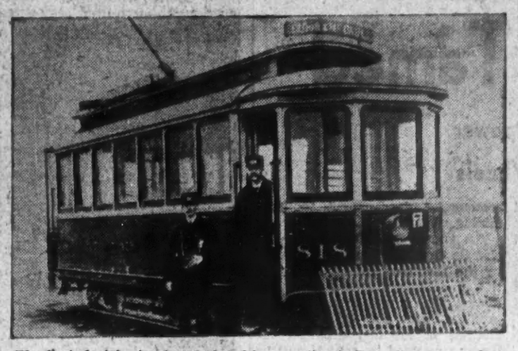
In the rapid progress that followed on this modest beginning, Canadian enterprise and Canadian engineers have been in the van. By 1887, Van Depoele had built two other short lines (one mile and seven miles long) in Windsor and St. Catharines, Ont. While the first electric railway system of any size was put into operation in Richmond, Va., in 1888, the first units of today's modern electric railway systems in Montreal, Toronto, Winnipeg, Vancouver, Ottawa, were put into operation no later than 1890-92.

In the selection and adaptation of progressively improved equipment to Canadian conditions, Canadian urban transport engineers have kept pace both with modern practice and the demands of the public they have served.

During the first 20 years or so of street car development, the weight of cars rose rapidly, jumping from about nine tons in 1890 to 28 tons in 1910. Factors in this were the need for a vehicle large and heavy enough to carry the big motor units of earlier years; to obtain better traction in operation; and to meet the increasing demand for transportation of larger masses of people in cars of greater capacity.

Since 1910, however, engineering progress in the design and construction of cars, and evolution of lighter and thinner but stronger materials, has reduced the weight of standard street cars to about 18 tons (below 17 tons for the last-word P.C.C. car).

The story of engineering progress in urban transport cannot be told entirely, however, in terms of the advance in street car design and operation; improvement in efficiency and durability of trackage; and betterment of overhead equipment. In the past 10 to 15 years, the tale of the industry has been rounded out by an especially brilliant chapter—the record of extension and improvement of bus and motor coach facilities. In many respects, the engineering achievements in this field have been even more rapid and striking than in regard to electric railways proper.



The first electric street cars placed in operation in Toronto were cumbersome and inefficient, but a revolutionary move from horse-drawn vehicles.

The modern, streamlined street car is a far cry from the first closed horse car operated in Toronto.

Bus Development

Increasing resort to automotive and more mobile units was thrust on the industry by a number of factors. Chief among these was the growing competition and interference with traffic operations from the private automobile. Another problem was the tremendous rise in labor and equipment costs, especially during and after the war. These and other factors made it impossible to carry the costs of trackage, overhead equipment, and street car operating costs in many districts.

In some areas, it has been found financially sound to install overhead wires but not trackage. In such cases, the rapid strides in design made it possible to operate trolley buses, notably in Montreal and Winnipeg. But generally speaking, the programme of replacement and supplementing of electric railway service has relied upon the swift evolution of motor bus and motor coach design in the past 10 years.

Rapid Improvement

Engineering has played a prominent part in making feasible and actually accelerating the use of motor buses, as a competitive and economic unit of urban transport. The engineer has made possible such necessary improvements as:

Placement of engines under or at rear of bodies, ensuring adequate seating capacity with less overall length, better weight distribution and greater mobility.

Integration of bodies and chassis into single units to eliminate vibration, improve riding comfort and operating efficiency, and lengthen durability.

Rapid increase in the power, speed, pick-up and braking capacity, enabling buses to operate with the necessary swiftness and flexibility in modern city traffic.

In the smaller centres, the trend has been toward almost complete replacement of electric systems with motor or trolley buses. In the larger cities, however, all evidence indicates that for many years the street car will continue to be the most economical and efficient unit, for moving peak volumes of passenger traffic in and out of the congested traffic centres.

The engineering and administrative problem facing urban transport in our larger centres is thus twofold:

1. Maintaining an efficient balance between the operation of street cars, trolley buses, and motor buses, whether buses be used for feeder lines or as substitute or extension of electric rail services.

2. Improving the efficiency and attractiveness of street cars as well as buses, both to meet the competition of private autos and to permit of modern-tempo operation in congested, quick moving street traffic.

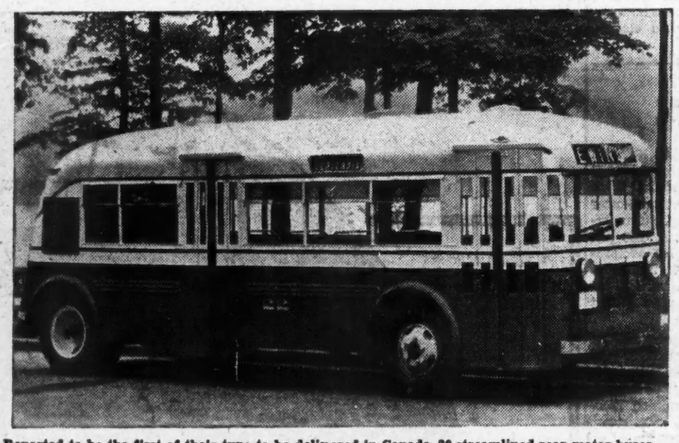
Ultra-Modern Cars

The answer of the industry to the second requirement is the revolutionary P.C.C. car, evolved by a million-dollar, mid-depression research project launched by the American Transit Association and directed by a body known as the Presidents' Conference Committee (P.C.C.). The advanced features of this type of car, 140 of which are in operation in Toronto, were almost entirely the product of engineering specifications and development from within the industry itself.

The new cars have rubber inserts in wheels and trucks, reducing running noise to a minimum and making for riding comfort; radically new motors, controls, and braking apparatus, which permit swift but smooth starting and stopping; increased speed, competitive with automobiles; a modern, streamlined body with improved seats, ventilation, automatic heating control, up-to-date lighting.

As they have been in general operation in the United States little more than two years, their introduction in Toronto last year (one tryout car is being used in Vancouver) keeps Canada in the front rank of urban transportation progress on this continent.

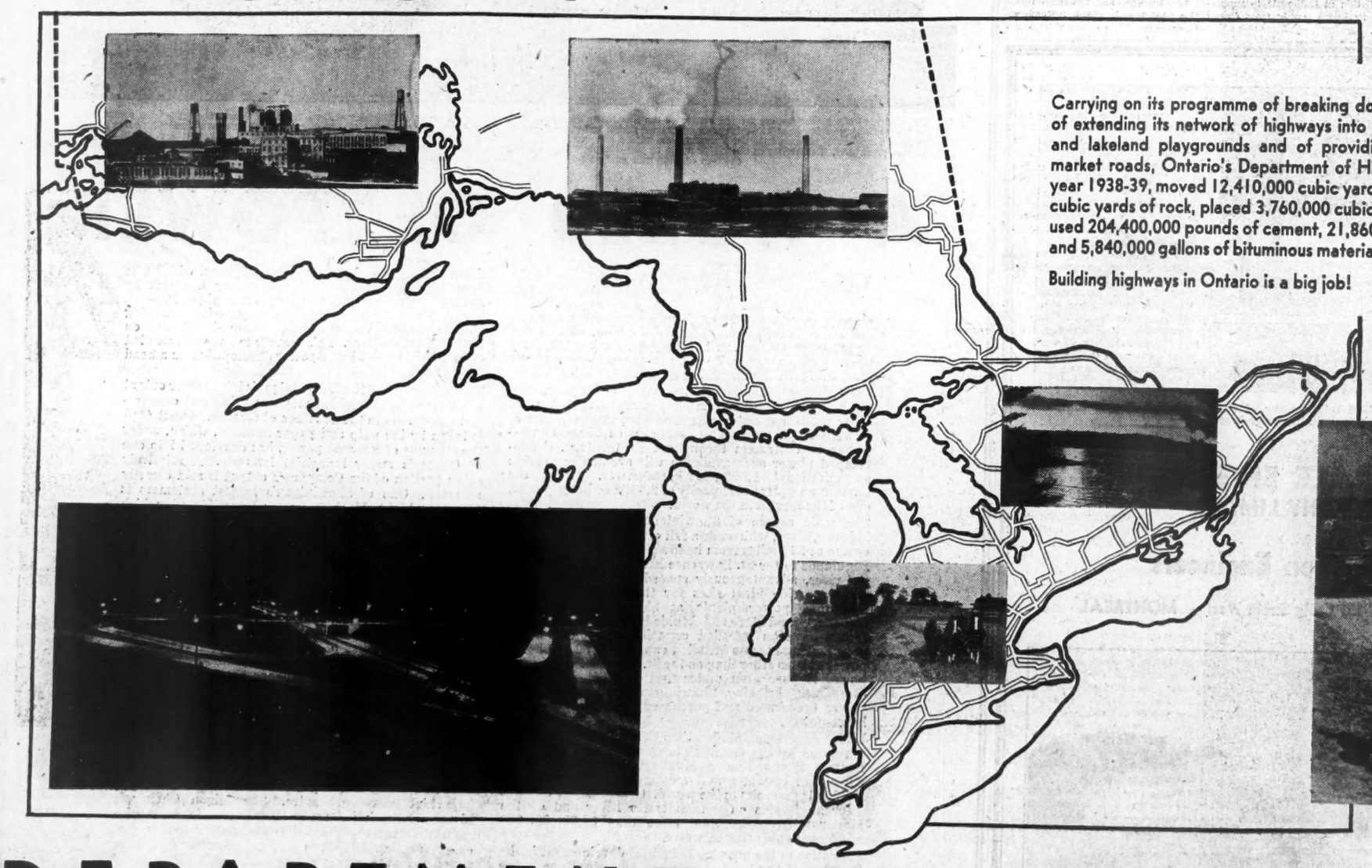
The P. C. C. street car is the product of a mid-depression $1 million research project sponsored by the American Transit Association. These cars are almost entirely the product of engineering specifications and development from within the industry itself. The cars were built by Canadian Car & Foundry Co., Montreal.



Reported to be the first of their type to be delivered in Canada, 20 streamlined rear-motor buses, built by Twin Coach Corp., have been placed in service by the Toronto Transportation Commission. The above photograph shows a side view of one of these buses.

Photo by Editorial Services.

Building Highways in Ontario . . . A Big Job



Carrying on its programme of breaking down existing frontiers, of extending its network of highways into mining fields, forests and lakeland playgrounds and of providing modern farm-to-market roads, Ontario's Department of Highways, in the fiscal year 1938-39, moved 12,410,000 cubic yards of earth, 5,040,000 cubic yards of rock, placed 3,760,000 cubic yards of gravel, and used 204,400,000 pounds of cement, 21,860,000 pounds of steel and 5,840,000 gallons of bituminous material.

Building highways in Ontario is a big job!

DEPARTMENT OF HIGHWAYS

HON. T. B. McQUESTEN, Minister.

PROVINCE OF ONTARIO

R. M. SMITH, Deputy Minister.

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AYS

SMITH, Minister.

Gas Completes a Century

Keeping Well Abreast of Young Rivals in the Field of Modern Utilities

The modern manufactured and natural gas industry today little resembles The London and Westminster Gas, Light & Coke Co. that provided the gas to illuminate Westminster Bridge in 1813.

From the first chaining of the "wild spirit" by Jean Baptiste van Helmont, a Flemish chemist in the early part of the 17th century, to present developments in the gas field, the tale of progress made is a romance of science.

Engineers have built the huge plants for the manufacture of gas in Canadian cities, erected a vast system of mains and storage tanks, with a minimum of ostentation and a maximum of efficiency.

The functions in the community of the gas industry are carried on smoothly. It is a public utility. Continual and efficient service is expected from it, and the public are not disappointed.

There are two sources of supplies for gas companies. It may manufacture its own supplies from coal, or it may look to the bowels of the earth.

The latter is the younger and perhaps the more colorful method. The natural gas industry is still opening up new sources of supplies in Canada and continuing to expand its services. In western Canada in recent years results have been noteworthy.

In 1937 Canada produced 32,381 million cubic ft. of natural gas, worth $11.7 millions. Sales of manufactured gas totalled 15,290 millions, valued at $14.7 millions.

The greatest volume of natural gas is produced in Alberta and second in this regard is Ontario. Figures below show production and value of natural gas in 1937.

Natural Gas Production in 1937

	M. Cu. Ft.	Value
New Brunswick ...	576,671	$ 283,922
Ontario	10,746,334	6,588,796
Manitoba	800	180
Saskatchewan	100,380	35,130
Alberta	20,955,506	4,766,437
N. W. T.	1,500	225
	32,380,991	11,674,802

The largest producing area in Canada is the Turner Valley field, about 35 miles southwest of Calgary. Production has been going ahead in spectacular fashion. There are about 23,500 customers in Calgary, Lethbridge and district served from this field. Repressuring of the Bow Island field is an interesting enterprise. Between 1930 and 1937 about 12,245 million cubic ft. had been piped back into these wells.

There are in addition important fields near Recliff, two miles west of Medicine Hat and the Viking field, which supplies Edmonton. At the end of 1937 there were 22 wells in operation in this field. In all in this province there were 100 wells in use at the end of 1937 and the number has been substantially increased since that date.

Ontario, the second largest producer of natural gas, had 182 operating, distributing and drilling firms in 1937. Discovery of gas in this province was first made in Gosfield township on Jan. 23, 1889.

Saskatchewan's production of natural gas has been rising steadily. The Lloydminster well is the principal source in that province.

Manufactured Gas

The manufactured gas industry serves a large number of customers in Canada and the towering steel storage tanks are a familiar sight in cities of any size.

In 1937 there were 476,965 customers served. Ontario accounted for 220,226 of these; the eastern provinces, 192,980, and the western provinces, 63,759. There was a total of 501,677 actively in operation, for which there were pipe lines totalling 3,729 miles in length.

Canada also imports a small amount of gas. In 1937 Canadians imported 114.3 million cubic ft. of mixed gas (natural and artificial) from the U. S. This was valued at $74,799.

Behind these modern facilities that deliver one of the essential commodities of modern living is a stirring story of achievement and progress.

Mankind's knowledge of this force, mysterious to a terrifying degree to the average mortal until the late 18th century, was restricted to its illuminating properties. The knowledge that gas could burn and be converted to some use was known to antiquity, in fact the Chinese are said to have used it.

It cannot be said that its commercial application received any great impetus until William Murdoch illuminated his house by this method near the end of the 18th century. He laboriously distilled the gas from coal, peat and wood.

In 1812 Royal Charter was granted Frederic Albert Winsor to form The London and Westminster Gas, Light & Coke Co. By the spectacular method of lighting Westminster bridge Winsor was able to attract the attention of the English people, and the industry, once the deeply ingrained prejudice of the people was removed, moved ahead rapidly.

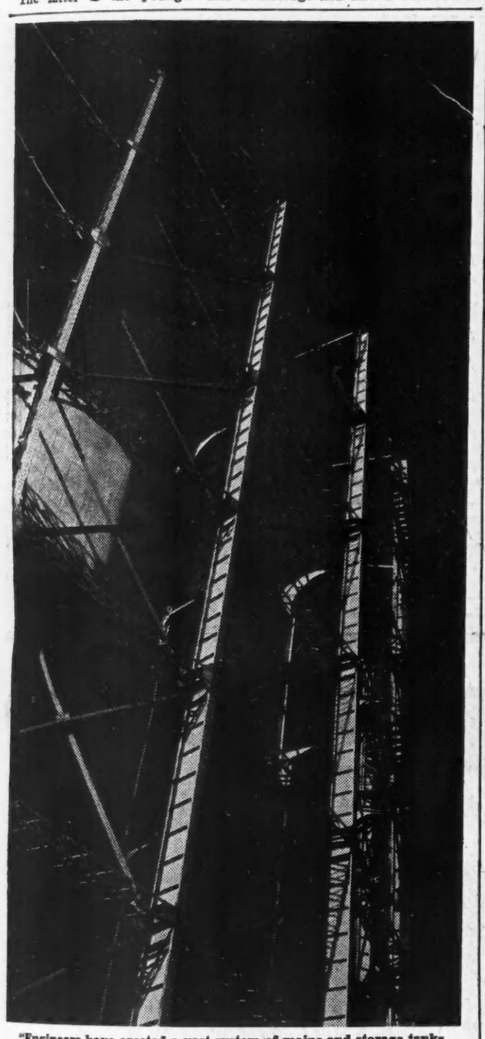
Use in Canada

By 1820 gas had received world-wide distribution. It was introduced to Montreal in 1840 and first supplied to Toronto in 1841.

Natural gas, however, remained neglected, shrouded in age-old mystery. The public regarded it as a useless curiosity, not adaptable to any useful purpose.

Its presence was well known. It had been found in salt wells, but it was not until 1821 that it was first commercially used. In that year a 27 ft. well was brought in at Fredonia, N.Y. By 1824 the well was supplying the town with gas for lighting purposes. The company organized for its distribution became the first natural gas company on the continent.

Since these pioneering stages both natural gas and manufactured gas companies have progressed with the times. The use of gas has been adapted to every conceivable commercial and domestic use. There appears little prospect that the industry will undergo any great change in the near future in its relationship to the communities which it serves.



"Engineers have erected a vast system of mains and storage tanks, with a minimum of ostentation and a maximum of efficiency."

Charting Coast Lines

While the sea floor is plotted through the mechanics of sound, plotting of Canada's coast has kept pace through aerial photography. Used in conjunction with triangulation along the coast, topographical features can be accurately plotted in the detail desired and in addition a saving in cost effected.

The responsibilities of Canada's Hydrographic and Map Service include not only marine charts, but the collection in the field of the necessary information for the compilation of publications important to navigation interests, such as Sailing Directions and Tide Tables. In addition the Precise Water Levels Division of the Hydrographic Service records and analyses the fluctuations in levels of the Great Lakes and St. Lawrence Waterway System from Port Arthur to Quebec. Probably no branch of surveying more quickly reflects its value in the commercial world than does hydrographic survey work, the accuracy and completeness of which is very definitely reflected in marine insurance rates.

Safeguarding Nation's Health

Less realized but highly important contributions of engineering in the public health fields include design and operation of garbage incineration plants, milk purification equipment, and general sanitation—embracing ventilation, heating, air-conditioning and industrial hygiene.

WORKING MATERIAL

The engineer must have something to work on with the tools of his brains and basic engineering principles. Metals of all kinds are one of his chief essentials, provided by Canada's heavy industrial resources such as the foundry pictured above.

Engineering Ousts Disease

Epidemics Retreat Before Advance of Water and Sewage Improvement

Among the many fields of engineering that have enhanced enjoyment of life in Canada, one important division stands out for its additional feat of beating back death and disease. To the striking progress in what is broadly described as public health engineering, reliable authorities give much of the credit for reduction of the general death rate in Canada, from 14 per 1,000 of population 50 years ago to an average of 10 in recent years.

In the same period, the advances in knowledge, methods and technical competence in public health engineering have played a significant part in lengthening the average life span from 47 to over 60 years.

Perhaps the most spectacular result of the work of this group of engineers, especially the experts on water supply and sewage disposal, has been the virtual disappearance of typhoid fever deaths and the reduction of recorded cases to negligible levels. In the short period of the past 20 years, the typhoid fever death rate has been cut from 30 per 100,000 of population to 0.2 in 1938.

Since the turn of the century, the conquest of typhoid, dysentery and other diseases has paralleled with remarkable closeness the progress of public health engineering. The steady increase in engineering units for control of water supply, milk supply, sewage, garbage disposal, and general sanitation, has been accompanied by marked advances in their efficiency and precision.

Other phases of public health engineering include prevention of stream pollution and spread of infection through swimming pools.

The achievements of public health engineering have been the instrument by which the expanding objectives of public health authorities, the discoveries of bacteriologists and other scientists, have been successfully translated into practical realities.

Progress of public health engineering projects in Canada, with particular reference to water supply and sewage treatment, was comparatively slow until the beginning of this century. This lag was partly due to limitations of medical, research and engineering development, partly to the relatively modest proportions of urban settlement and the abundance of fresh water in most Canadian areas. More than 6% of the area of Canada is covered by fresh water, and lakes and streams are available to most communities for both water supply and to carry off wastes.

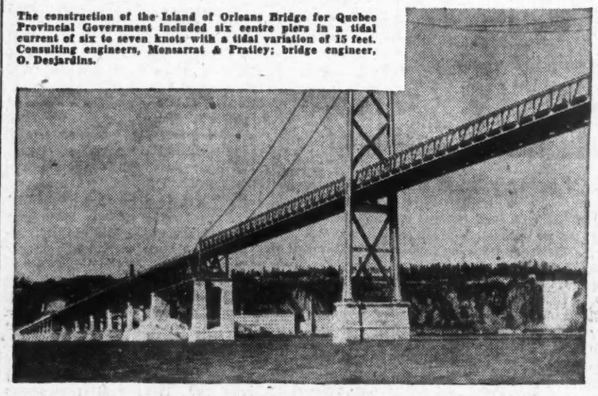
The first public water supply systems were established in Saint John and Toronto in 1837 and 1841, but by 1885 there were only 60 plants in Canada. Ten years after the turn of the century, however, this figure had jumped to 420. The increase was partly due to typhoid epidemics and realization of their causes. But it was also traceable to improved pumping equipment, better pipe design and other engineering advances which provided a ready weapon to fight infection and disease.

Spread of electric power transmission, advent of the centrifugal pump, and continued engineering improvements accelerated the advance. Latest figures show 1,258 public waterworks systems in the Dominion, serving six million people or 54% of the population. Over 250 of the systems have chlorination installations protecting four million population. In Ontario 80% of all public water supply is chlorinated.

In most of the larger centres, chlorination is accompanied by filtration to give primary protection, about 10% of all waterworks systems having filtration equipment. The early type of filters installed

(Continued on page 44)

The construction of the Island of Orleans Bridge for Quebec Provincial Government included six centre piers in a tidal current of six to seven knots with a tidal variation of 15 feet. Consulting engineers, Monsarrat & Pratley; bridge engineer, O. Desjardins.



Derrick boat "Foundation Scarboro" — Canada's most powerful — handling one of forty-one 350-ton-100-foot sections of concrete-encased steel pipe in the building of intake water pipe in Lake Ontario for the City of Toronto. Engineers, H. G. Acres & Co. Ltd.; associate consulting engineers, Gore, Nasmith & Storey; commissioner of works, B. C. Harris.

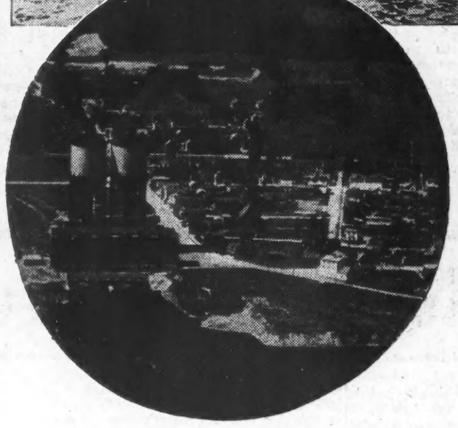
A Tribute to Canadian Engineering

• One of the largest engineering achievements in recent years, the Baie Comeau development — built for the Ontario Paper Company by Foundation — is a fitting tribute to the engineering spirit of Canada.

Such a contract demands enormous resources in men and equipment — and particularly in engineering skill. It is in the fulfillment of such contracts — and equally in smaller contracts —that Foundation proudly participates in serving Canada and in making available to Canadian builders the composite skill of a large and experienced organization.

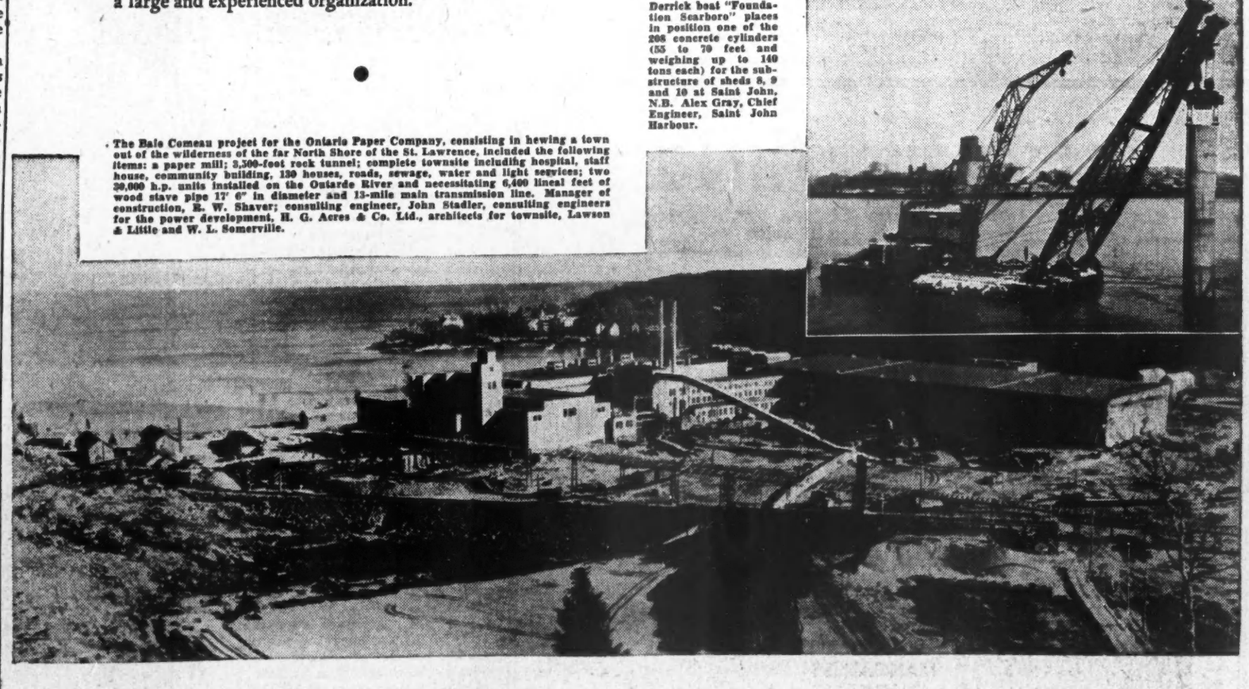
•

The Baie Comeau project for the Ontario Paper Company, consisting in hewing a town out of the wilderness of the far North Shore of the St. Lawrence, included the following items: a paper mill; 2,500-foot rock tunnel; complete townsite including hospital, staff house, community building, 130 houses, roads, sewage, water and light services; two 30,000 h.p. units installed on the Outarde River and necessitating 6,400 lineal feet of wood stave pipe 17' 6" in diameter and 13-mile main transmission line. Manager of construction, R. W. Shaver; consulting engineer, John Stadler, consulting engineers for the power development, H. G. Acres & Co. Ltd., architects for townsite, Lawson & Little and W. L. Somerville.



One hundred and thirty thousand horse power Hydro-electric development for James Maclaren Company, Ltd., Masson, Quebec, including 6,000-foot tunnel with a 25-foot inside diameter. Consulting engineers, Hardy S. Ferguson & Co.

Derrick boat "Foundation Scarboro" places in position one of the 208 concrete cylinders (55 to 70 feet and weighing up to 140 tons each) for the substructure of sheds 8, 9 and 10 at Saint John, N.B. Alex Gray, Chief Engineer, Saint John Harbour.



THE FOUNDATION COMPANY OF CANADA LIMITED

MONTREAL TORONTO HALIFAX

Engineers Safeguard Shipping

Radio Plays Important Part in Modern Chain of Aids to Navigation

The Dominion Government employs a staff of 2,500 trained men for the sole purpose of protecting her coastal and inland navigation from the hazards of rock and weather.

At the head of the aids to navigation branch of the department of transport today are engineers who have specialized in what is popularly known as lighthouse engineering but which in reality takes in the three fields of chemical, electrical and civil engineering in the scope of its activities.

Writing in the Engineering Journal two years ago J. G. Macphail, M.E.I.C., chief of aids to navigation for the department, put in the following concise form the problems of Canadian navigation and the constant efforts of his department.

"The administration is constantly pressed to establish additional aids to navigation or to replace older equipment with new. Shipping interests demand the latest not only in respect of necessity but of convenience. Ships today are larger, of deeper draft and faster. The shoal that did not matter 50 years ago is a deadly peril today. Fifty years ago it did not matter much whether a vessel reached Montreal today or tomorrow or next week. In these times hours are a matter of concern.

"The first problem of the modern lighthouse engineer is to determine what the requirements are and then to determine how best they can be met having regard to the volume of traffic, the consequences of shipwreck and the cost of establishment and maintenance."

Dominion Equipment

On this basis the equipment owned by the department today consists of 2,000 lights, 400 fog signals, 600 gas and signal buoys, 12 lightships and 9,000 unlighted buoys and day marks. Behind each separate bit of equipment stands years of engineering research.

Lighthouse construction in itself is a story of changing methods from the old stone structures of half a century ago to the modern waterproofed reinforced concrete tower of today. Water damage today has been virtually eliminated by the use of plastic materials applied under pressure to the old stone structures and the use of sealing compounds on concrete.

Scientific discoveries in the field of navigation protection are traditionally shared with every country in the world and adopted as quickly as they are discovered. The Canadian equipment is neither more nor less up to date than that used by Washington. Canadian engineers, however, have made valuable contributions to the advance of the past 50 years.

Canadian Contributions

In the field of optics the names of two Canadians stand high in the list. Twenty-five years ago lighthouse lanterns were a complicated and expensive series of reflectors each with its own source of light. The late L. E. Cote, M.E.I.C., former chief engineer of the Marine Department at Ottawa, developed a modern system of reflectors using one source of light. He not only increased the efficiency of the light but reduced power costs to almost one tenth.

H. deMiffonis, M.E.I.C., formerly acting chief engineer of the department, and now retired, developed a short focus reflector using electricity to revolve it as well as for the source of light.

The advance from the old kerosene lamp to the modern electric lantern has, of course, revolutionized lighthouse services. Today all important lighthouses in the Canadian service either generate their own power or use commercial power. In all cases auxiliary light and power are provided for emergencies. In places where interruption of even a minute or two might be dangerous these auxiliary plants go into action automatically when current fails.

Less important lights still use gas stored by various means at the lighthouse. One of the hundreds of small devices contributed by lighthouse engineers is the sunvalve which automatically turns off the gas in the daytime and lights the lamp at dusk.

Diaphone Fog Signal

The diaphone fog signal in general use today was invented by J. P. Northey of Toronto, though air compressor equipment used to operate it is very different. It may be news to those who live within earshot to know that the foghorn is the purest of musical notes. At least that is the goal toward which the engineer strives. Volume of sound is only a secondary consideration. Purity of tone can carry the sound for miles and can be heard above the clamor of a city street.

Bell and lightbuoy equipment represents an investment of hundreds of thousands of dollars by the Dominion Government. Gas lighting is still the most satisfactory method. Larger buoys contain charges of approximately one ton of carbide refilled once a year. Sea water fills a chamber separated only by a grating from the carbide. The gas as it is generated pushes the water from the chamber. As gas pressure is reduced the water flows back and makes contact with the carbide to form more gas.

In other types of buoy acetylene is stored under pressure. Some of the deep sea buoys are anchored in as much as 250 feet of water and the weight of chain and anchor is about 12 tons. The buoys themselves weigh about 16 tons.

The most important aids to navigation today are the radio direction finding stations and radio beacons dotted along the Canadian coastline. A ship hundreds of miles out at sea can get its exact location by the simple device of contacting two direction finding stations, getting bearings from each and working out a simple problem in trigonometry. Radio beacons operate automatically and during fog send out signals every two or three minutes.

A recent development described by Mr. Macphail is the combination of radio with aerial sound signals. A radio signal and a diaphone sound signal are sent out at the same second. The radio signal is heard instantaneously, the diaphone several seconds later. By basing his calculations on the speed of sound the navigator can determine his distance from the source.

Marine Industries Ltd.

Wolfe's Cove, on the St. Lawrence just above Quebec City, has, in recent years, been transformed into a deep water seaport for ocean-going ships. Four hundred acres of new harbor land have been created.

$370,000,000 Gateway

Canada's Harbor Development

A Vital Factor in Her Growth

Canada's ports have a value of $370,000,000. But as Sir Alexander Gibb pointed out in his National Ports Survey, they are part of a transportation system which, including railways, canals and roads, is assessed at $4,500,000,000 and constitutes over one seventh of the country's estimated wealth.

The principal ports, said Sir Alexander, are not, as in many countries, founded on the service of a great exporting or consuming area in their immediate neighborhood; nor have they been created and developed by merchant or shipping interest.

"They exist primarily as the connection between land and sea in the long route that the exports of Canada must take to reach their market; and for that reason, by the terms of Confederation, and in distinction from the position in the United States where the ports have remained almost entirely in the control of the individual states and cities, almost all ports in Canada have become federal property."

With its coastline of several thousand miles in length, Canada has many hundreds of coastal harbors. With her great inland waterways systems, she has many inland ports of equal size and importance, notably Fort William and Port Arthur at the head of the lakes, Toronto, Collingwood, and others.

Major Seaports

There are six major seaports, namely, Halifax, Saint John, Quebec, Montreal, Vancouver and New Westminster. Through these ports passes almost 50% of the total foreign trade of the Dominion and over 75% of her overseas trade. In 1929 the all-time high of Canada's record of foreign trade, the total amounted to $2.65 billions, of which $1.26 billions passed through the principal ports.

On a tonnage basis the 1937 fiscal year was the largest. In that year over 11.1 million tons of freight entered and nearly 15.8 million tons cleared, for a total of 26.9 million tons. This movement compared with 25.2 million tons of cargo handled at Canadian ports in the previous record year of 1929.

National Harbors Board

Eight of the principal harbors of Canada are under the administration of the National Harbors Board. Prior to Oct., 1935, the seven national harbors of Canada—Halifax, Saint John, Chicoutimi, Quebec, Three Rivers, Montreal and Vancouver—were under the management and control of separate harbor commissions, each consisting of three persons appointed from the immediate locality. These ports were nationalized, the powers and responsibilities inherent in each of the seven former commissions being vested in a single National Board, leaving the local administration in the hands of a port manager responsible to the board.

In 1937 further legislation was enacted transferring Churchill harbor as well as grain elevators at Prescott and Port Colborne to the National Harbors Board for administration, management and control. These changes were brought about following the recommendations of Sir Alexander Gibb.

Harbor Commissions

A number of other harbors are administered by commissions which include municipal as well as Dominion Government appointees, while the remainder are administered by harbor masters directly under the authority of the department of transport.

In addition to the harbor facilities under the control of the National Board and other operating commission, at most ports there are dock and handling facilities owned by private companies such as railways, pulp and paper, oil, and sugar industries, etc.

The co-ordination of land and water transportation at many of the seaboard and inland ports is a vital factor in the Dominion's economic life. The harbors are provided with much special equipment to facilitate interchange movements, notably the development of grain handling facilities. Moreover the equipment includes the necessary docks and wharves, some for passenger traffic but most of them for freight; warehouses for the handling of general cargo, and special equipment for such bulk freight as lumber, coal, oil, grain, etc. Equipment may include cold storage, harbor, railway and switching connections, grain elevators, coal bunkers, oil storage tankers, and, in the main harbors, drydock accommodation.

In all Canada's investment of $370,000,000 in its ports has been and is a vital factor in the growth of the Dominion.

A Start on Flood Control

First Major Engineering Project Gets Under Way in the Dominion

Canada's first major attempt at flood control has been launched.

Construction of the Shand Dam near Fergus, Ont., started two months ago, is the first step in the programme of flood prevention and water flow control planned by the Grand River Conservation Commission. It is the first project of any consequence and of more than local scope in Canada for the joint objectives of flood control, water storage and regulated flow.

There are, of course, notable achievements dating back some years which reflect the talents of Canadians in other phases of the broad field of hydraulic engineering. Big dams and other works are monuments to Canadian accomplishment in the realm of water diversion, elevation and storage for generation of hydro-electric power. Canals, breakwaters and docks are lasting evidence of the power of engineering skill to conquer nature in our waterways. Millions of dollars have been spent, thousands of acres of infertile land made tillable, through the water diversion and irrigation projects in Alberta and British Columbia.

New Problem

But hitherto the demonstrated ability of Canadian hydraulic and structural engineers has not been applied to curb regional flood hazards, or solve water storage and flow control problems apart from power and irrigation schemes.

Chief reason, of course, is that occurrence and effects of floods in Canada have been comparatively limited, and have only sporadically stirred public demand for remedial projects. Compared with the need and demand for irrigation works, the pressure for flood control schemes has been negligible and localized.

Previous Local Works

Such local works as have been undertaken in the field of flood control have been carried out mainly in the valleys of the Grand River and Thames. Dykes, river walls and other devices have been employed at Brantford, Galt and Paris, Ont., in an effort to protect street facilities, industries, property and the inhabitants from the Grand River floods which have frequently menaced them and periodically done heavy damage.

The dyking, sewer gates and other works at Brantford are the most extensive, dating back to 1887 and entailing a total outlay of over $450,000.

In the Thames River valley, floods and related conditions have been perhaps more violent in their effects but less frequent and continuing, though both valleys suffered considerably two years ago. In the Thames area, most noteworthy control project was the dyking and diversion of the Thames River carried out after the last flood by Gypsum, Lime & Alabastine, Canada, Ltd., and North American Cyanamid Ltd. Purpose of this work was to protect lime quarries and storage facilities from the river, which wound for a mile through the properties of the two firms.

Paradoxically, flood control as such was a secondary factor in finally getting results from the succession of surveys and proposals (almost entirely by engineers, incidentally) in regard to the Grand River valley situation. Furthermore, flood prevention is officially listed as the secondary objective of the Shand Dam project.

Raise River Levels

The main objective is to raise river levels and ensure even summer flows in the Grand River. Even in years when no serious floods have occurred, these levels and rates of flow have often been inadequate to provide proper dilution and dispersal of urban sewage. In recent years, with the growth of populations, conditions have given rise to concern among public health and utility authorities.

Conditions in the river as recently as 1936 were described as "offensive, to say the least" in a paper delivered by F. P. Adams, of Brantford, secretary of the Grand River Conservation Commission, at the 1938 Engineering Institute of Canada convention.

While topography of the region and soil formations are among the various contributing factors, primary cause of the low water has been the rapid and turbulent run-offs from headwaters during spring break-ups. Thus the engineering problem now being solved at Shand is to subdue and retain flood-season run-offs, and provide a source of regulated flow.

Grand River records show that the daily average flows at Galt during the summer have fallen below 100 cubic feet per second in most years, and as low as 26 c.f.s. in 1929 and 47 c.f.s. in 1937. This compares with an estimated minimum requirement of health authorities of a flow at a nearby point of 200 c.f.s.

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The

Fifty-Seven Of Steel Cov

1 Builders of Canada! Th than the engineer who h

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The binding together with one homogeneous whole and t life to its present status is a which ranks on a parity with any other nation. The Unite India are the only countries in mileage than Canada and in r greater average. There are 42,5 including three Transcontinen

Canada's railways take the forests and our industries to th year they move over 75,000,000 20,000,000 passengers.

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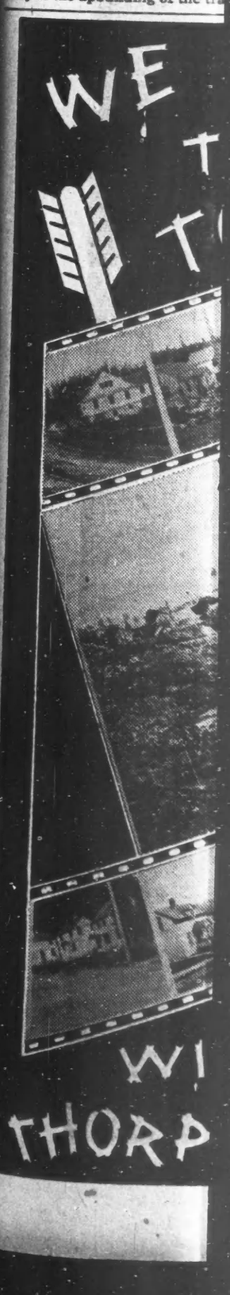
The years between 1920 a line construction which broug its present total of 42,500 mile

It has been a feature of C railway engineers have built ah new territories, expanding faci growing needs of the Dominion ness and left settlers and towns that Canada today has too man lines are too numerous and have dian taxpayers are suffering from responsibility must lie outside the has been given a job of immen it. He has given Canada a tra the world.

This amazing record of rail part of the work done by the en transportation services. With also necessary to construct bri way yards, roundhouses, repai of the engineering profession way to the upbuilding of the tra



The Engineer Has Given Us Steam Railways

Fifty-Seven Thousand Miles Of Steel Cover the Dominion

1 Builders of Canada! There is none more worthy of the title than the engineer who has given Canada her railway systems.

There have been technical problems to be solved; shortage of capital; physical dangers; bridges to be built; tunnels to be carved out of the solid rock; swamps to be overcome; lakes to be skirted and terminals to be built. The railway builders of Canada had few precedents to go by; they relied upon their own resourcefulness.

The binding together with steel rails of the nine provinces into one homogeneous whole and the development of Canada's economic life to its present status is an achievement of Canadian engineers which ranks on a parity with the engineering accomplishments of any other nation. The United States, Soviet Russia and British India are the only countries in the world with greater total railway mileage than Canada and in miles per capita only Australia has a greater average. There are 42,552 miles of railway in the Dominion, including three Transcontinental lines.

Canada's railways take the products of the mine, the farm, the forests and our industries to the markets of the world. In an average year they move over 75,000,000 tons of freight and carry more than 20,000,000 passengers.

2 In the years following Confederation the building of a transcontinental railway became a live issue, an issue which had its culmination in the formation of the Canadian Pacific Railway in 1880. The building of the C. P. R. from Montreal to the Pacific was the great pioneering adventure in Canada's railway history. Almost insurmountable obstacles were faced and overcome in constructing the rail line around Lake Superior. Swamp and rock delayed construction. Costs per mile were staggering. But the work went on and the early engineers had their reward when they reached the prairies where rail was laid at a rate which amazed the world. The toughest problem of all was the climb over the Rockies but again the engineer pushed through to create a transcontinental line which was to blossom into the world's greatest transportation system.

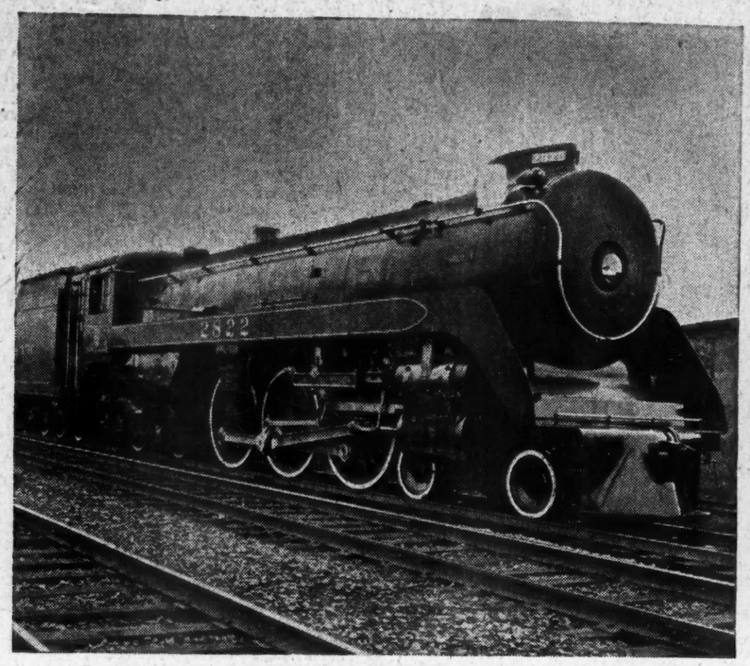
The building of the C. P. R. started an era of railway construction. The Grand Trunk Pacific built its western line, forming with the Grand Trunk another transcontinental service; The Canadian Northern gave Canada its third across-country system. The Dominion Government entered the picture with the National Transcontinental through northern Ontario and Quebec.

3 In 1880 when the Canadian Pacific was formed there were less than 7,200 miles of scattered railway lines in the Dominion. By 1890 the mileage had increased to 13,151 miles; in 1900 to 17,657 and in 1910 to 24,371. The war years stopped any new projects but work already started was completed, so that in 1920 Canada had 38,805 miles of steel.

The years between 1920 and 1930 marked a period of branch line construction which brought Canadian railway mileage up to its present total of 42,500 miles.

It has been a feature of Canada's transportation history that railway engineers have built ahead of their time. They have opened new territories, expanding facilities and generally anticipating the growing needs of the Dominion. They have plunged into the wilderness and left settlers and towns to follow their trail. It may be true that Canada today has too many miles of railway line, that branch lines are too numerous and have not been well placed. But if Canadian taxpayers are suffering from the burden of railway deficits responsibility must lie outside the engineering field. The engineer has been given a job of immense proportions and has accomplished it. He has given Canada a transportation system second to none in the world.

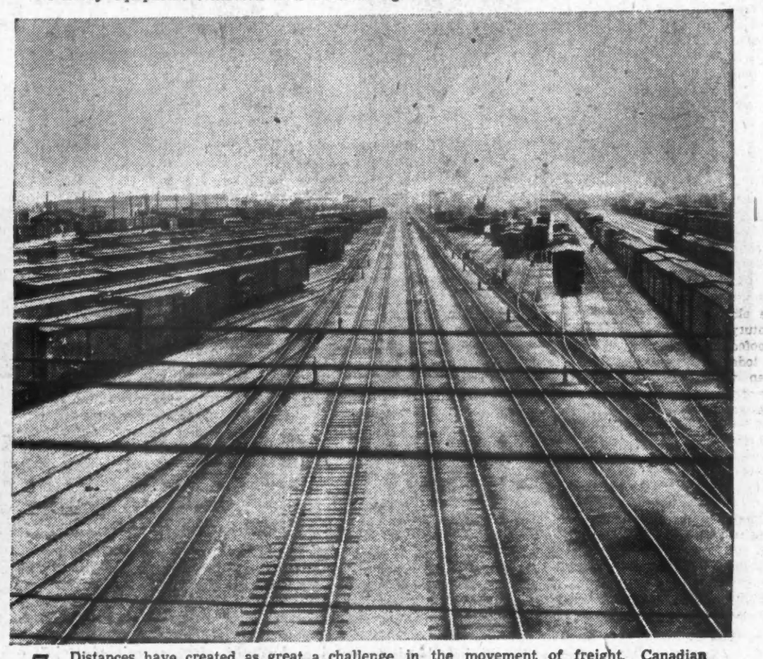
This amazing record of railway building in Canada only covers part of the work done by the engineer in providing the country with transportation services. With the building of the rail line, it was also necessary to construct bridges, culverts, sidings, harbors, railway yards, roundhouses, repair shops and elevators. Every branch of the engineering profession has contributed in a small or large way to the upbuilding of the transportation system as in force today.



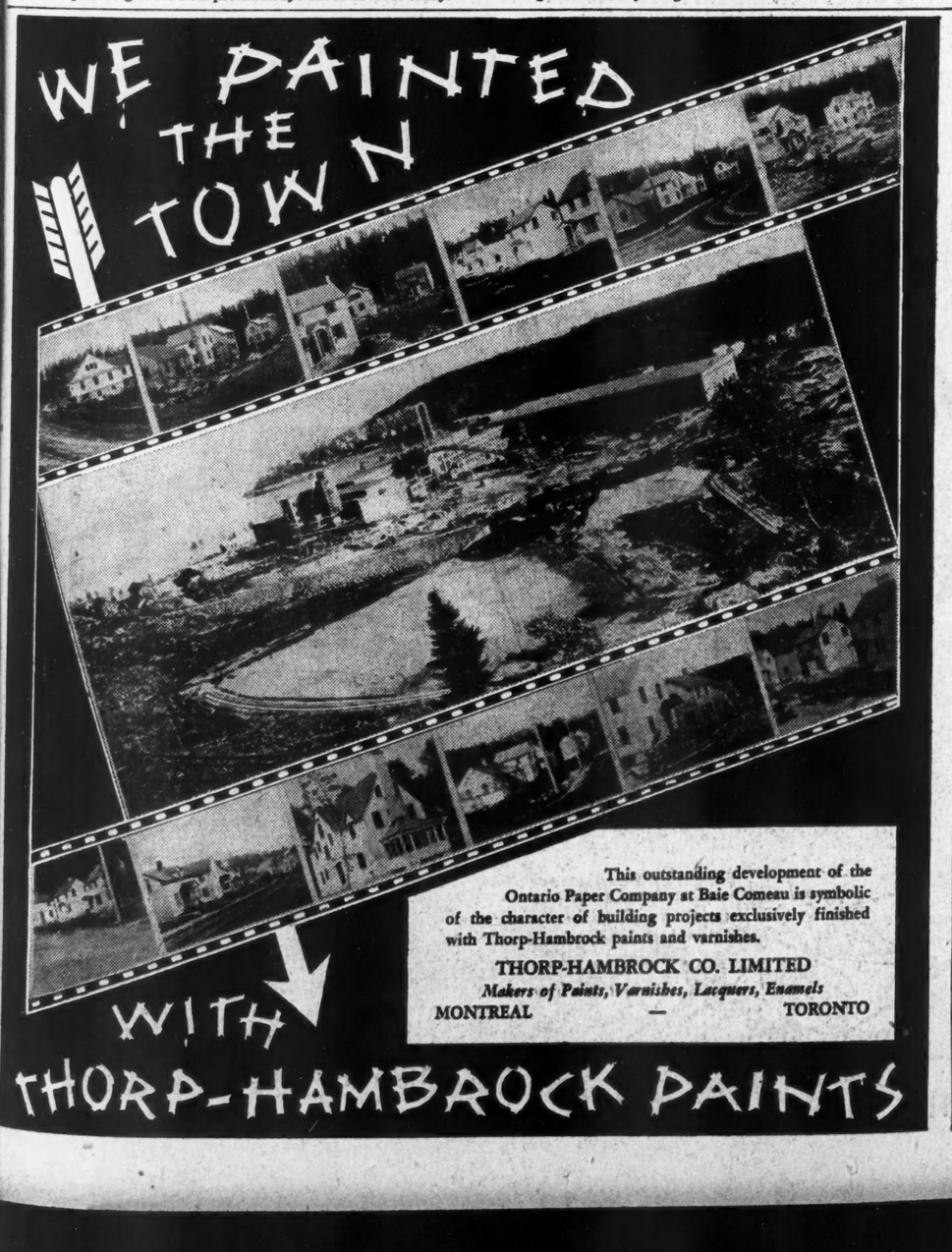
4 Special types of equipment have been designed to meet the peculiar needs of Canada. Motive power is built to fulfill the requirements of varying conditions of operation. High speed engines like this C. P. R. locomotive are used in heavy traffic.

5 Heavy snowfalls have been a major factor in Canadian railway engineering and have precluded designing of light locomotives. The C. N. R. 6400 type locomotive is an example of heavy equipment combined with streamlining.

6 If railway yardage sidings and second tracks are added, Canada's total of 42,500 miles of railway becomes 57,000 miles. The passenger yards in Toronto are only a section of the great area of yardage which surrounds this terminal. *C. N. R. photo.*



7 Distances have created as great a challenge in the movement of freight. Canadian engineers have designed special cars for the carrying of livestock, grain and perishables. The Winnipeg freight yards are the largest in the Dominion. *C. P. R. photo.*



This outstanding development of the Ontario Paper Company at Baie Comeau is symbolic of the character of building projects exclusively finished with Thorp-Hambrock paints and varnishes.

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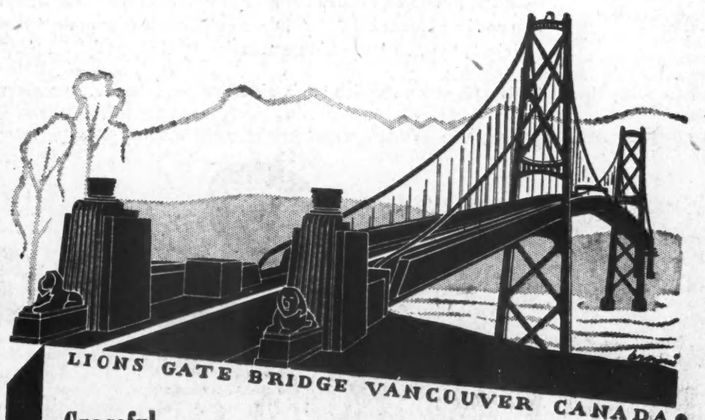

Graceful . . . majestic . . . the Lions Gate Bridge, spanning the turbulent waters of the First Narrows, is a thing of stirring beauty. In purpose and design this structure is a magnificent illustration of the engineers' contribution to the community.

A remarkable example of modern engineering skill, the Lions Gate Bridge is the gateway to the growing municipality of West Vancouver, within which is situated Capilano Estates. No less remarkable is the recent development of these residential properties which have literally been cut from the mountain slopes. Here again engineering skill has claimed from the wilderness a supremely beautiful residential area which is more and more attracting home buyers from all parts of the world.

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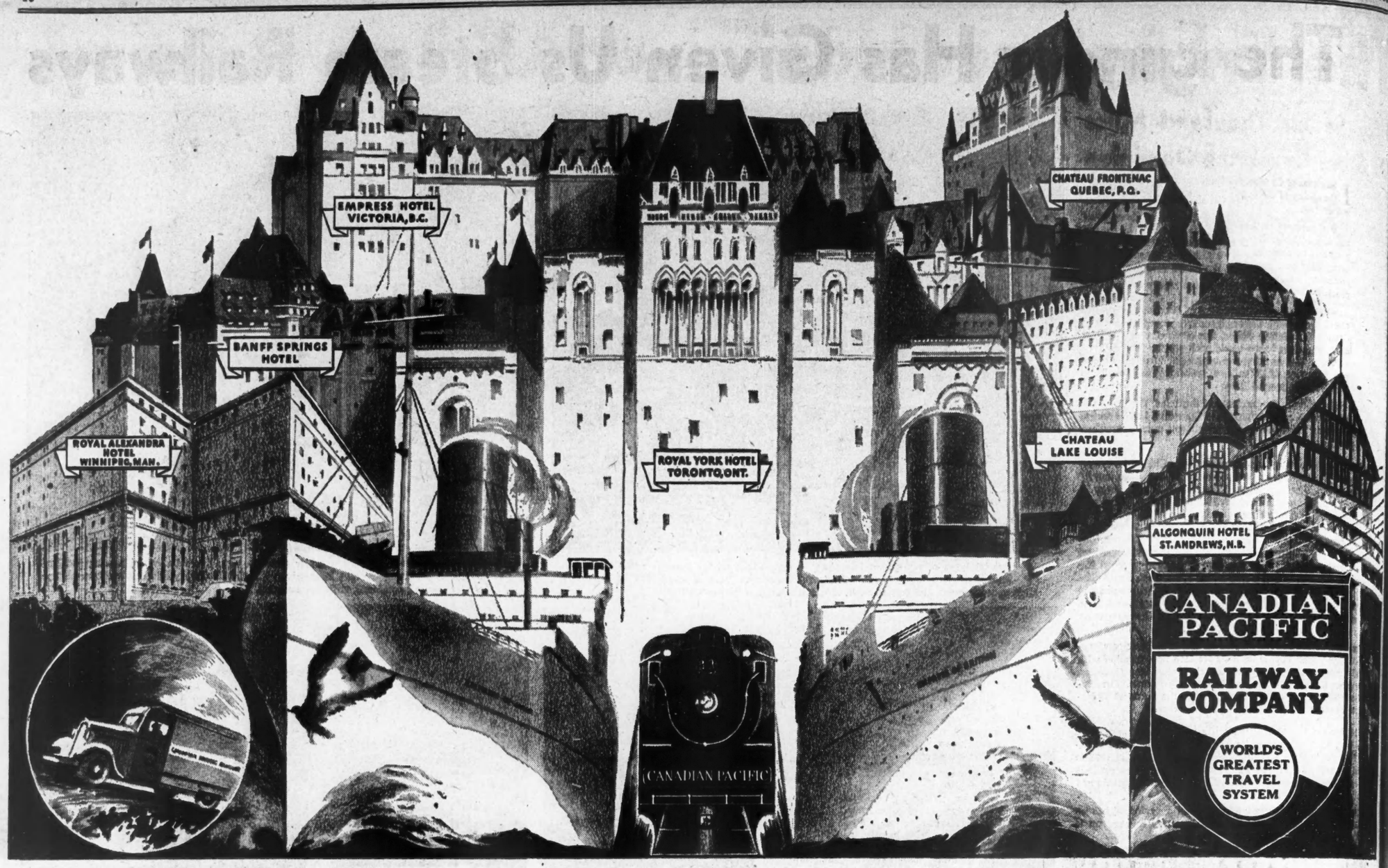


ENGINEERING GENIUS BUILT - AND ENGINEERING SKILL MAINTAINS -

The World's Greatest Travel System

"Bold headlands, rugged and steep, often terminating in rocky cliffs, descending almost perpendicularly into the water . . . the first view of these might well cause one to despair of getting a railway constructed." (From a report written in 1872, during the survey of the Canadian Pacific.)

Innumerable were the obstacles — and formidable the hazards — overcome by the engineers who surveyed, built and equipped the Canadian Pacific, linking Canada's Atlantic and Pacific seaboards by an all-Canadian railway system . . . but the work went forward without interruption until on November 7, 1885, the stupendous barrier of the Canadian Rockies was overcome and the last spike on the main transcontinental line was driven.

Today, Canadian Pacific's swift, air-conditioned trains . . . luxurious hotels and vacation resorts . . . trans-Atlantic and trans-Pacific steamships . . . winter and summer cruises . . . freight and telegraph services . . . express . . . bridges, tunnels, motive power and rolling stock — all the units of the World's Greatest Travel System — could not function were it not for the continuous supervision of trained engineers in co-operation with other members of the Canadian Pacific staff.

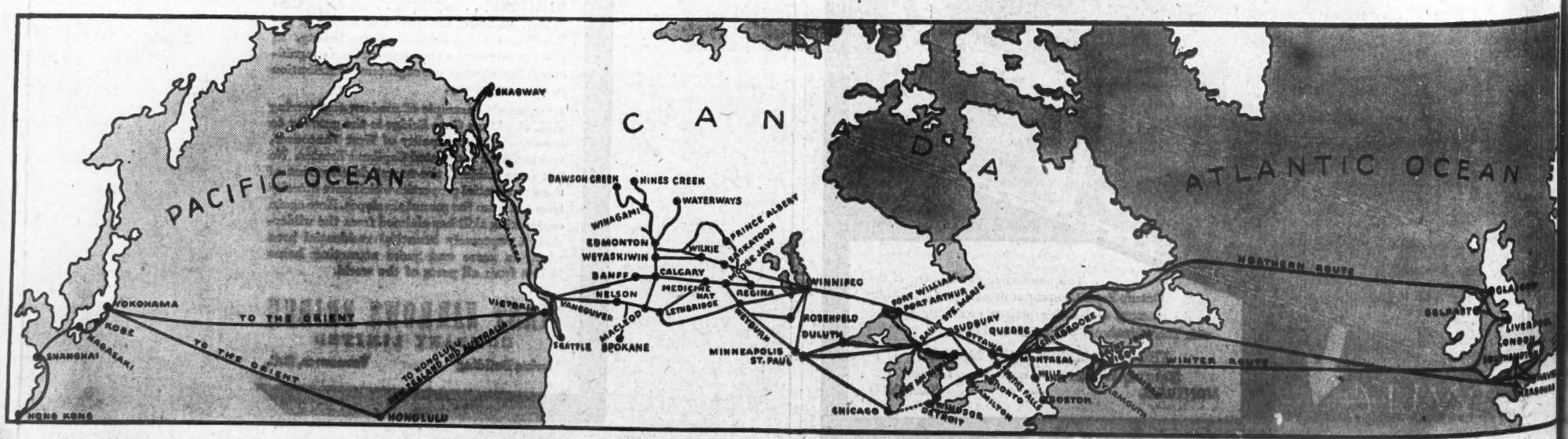
Canadian Pacific takes this opportunity of acknowledging the debt it owes—and must continue to owe — to the engineering profession.

Take advantage of the facilities that this incarnation of engineering skill offers of visiting and communicating with all parts of Canada and the world.

Canadian Pacific offices and agents everywhere are at your service.

Canadian Pacific

Always carry Canadian Pacific Express Travellers Cheques . . . Good the World Over



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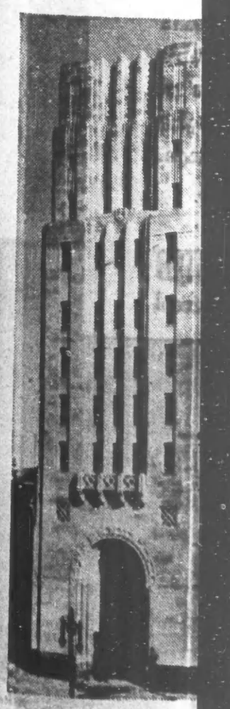

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The Engineer Has Given Us Tall Buildings

Towering City Skylines Are Striking Example of Engineering Adaptability

Skylines of Canada's cities today are a striking illustration of the ability of the engineer to adapt himself to the needs of the modern age.

Big business on heavily taxed frontage has demanded big buildings. The architect has designed towering structures surpassed in no other part of the whole British Empire. The structural engineer, backed by the mechanical branch of the profession, has made those buildings possible and in doing so has provided something beautiful, practical and permanent.

Introduction of structural steel some 40 years ago opened the era of big buildings in Canada and elsewhere. Since that time Canadian engineers have kept abreast of the times though Canadian conditions have not challenged his ingenuity to the same extent as that of his colleagues across the line. Canada has, in fact, been able to follow the American lead largely in its construction of tall and large business buildings. In neither country has there been any recent radical change in materials used or methods of construction. A survey of Canadian structures over the last few years shows the same basic principles have been used throughout

In speeding up construction and devising ways of reducing costs, however, the engineer has made a steady advance. New structural materials, too, have been developed which have not only added potential age to modern Canadian buildings but have opened new fields in beautification to the architect.

Among the outstanding developments in cost reduction has been the use of reinforced concrete for office building construction. This type of construction is increasing in popularity, particularly in cases where buildings are expected to pay dividends in rentals.

A still more recent development which promises to have a much greater influence on structural work in the next few years is arc welding of steel, again the product of engineering progress. There are construction experts who predict that arc welding is destined to leave the rivetter completely in the cold in a short time. Today welded steel is the centre of attention for engineers at Ottawa who are engaged in preparation of a national building code for Canada.

In Canada development of building and structural design in the last 30 years has been influenced very largely by the desire to make use of raw materials of Canadian origin. Sandstone from Nova Scotia is found in a number of buildings not only in the Maritimes but throughout Canada. Quebec granite has been in demand wherever the cost budget allowed it. Thousands of tons of the limestone quarry at Queenston have been moved across the lake to take their part in the building of Ontario's capital city. Quebec and Manitoba limestone have also been used extensively, while the same provinces have contributed large quantities of marble for interior work.

The problems of the structural engineer multiply in direct proportion to the height of his building. Low lying structures, no matter how large, are simple compared with skyscraper construction. In the skyscraper steel stresses must be calculated with due regard to wind pressure. The popular conception that skyscrapers sway in the wind is virtually a myth so far as Canada is concerned. The Bank of Commerce building, tallest in Canada, is constructed so that movement in the highest wind would not be more than a small fraction of an inch. Horizontal compression of steel under the tremendous weight of such buildings must be calculated and allowed for in structural design of any tall building. Even with this calculation there is inevitable a small variation when the building is completed. The Bank of Commerce building is three inches shorter than intended.

First of the modern skyscraper type of buildings were erected in Canada not long after the turn of the century and fundamentally the tall buildings of today do not vary greatly from the originals. Outwardly the principal change in the last 35 years has been in architectural design. Recent examples like the Bank of Commerce Building, the new Bank of Montreal Building in Toronto and the Bell Telephone Building in Montreal only differ outwardly from the first skyscraper, the old Traders Bank Building in Toronto, in the elimination of projecting cornices and in the provision in recent years of flanking tiers of lower stories surrounding a tall central tower.

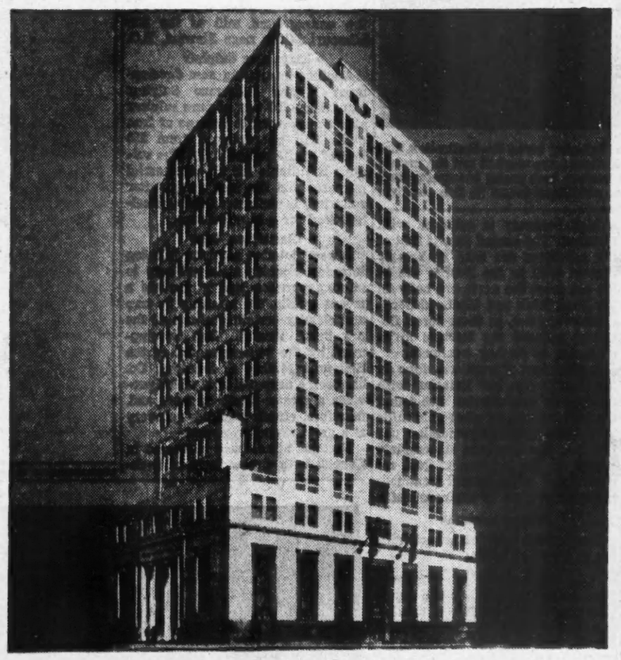
This modern tendency to erect tall buildings on a broader base, it is stated, will gain greater popularity as business sections in the larger cities continue to spread. Institutions like banks, insurance and public utility companies which require large office space are, in many centres, finding it less necessary to group themselves close together in the downtown areas. They are acquiring larger acreages on the fringe of the former business areas for their new locations. This trend will probably make more popular that type of construction adopted by the builders of Vancouver City Hall and the Sun Life Building of Montreal. These, while qualifying in the tall building class, are at the same time very broad at the base.

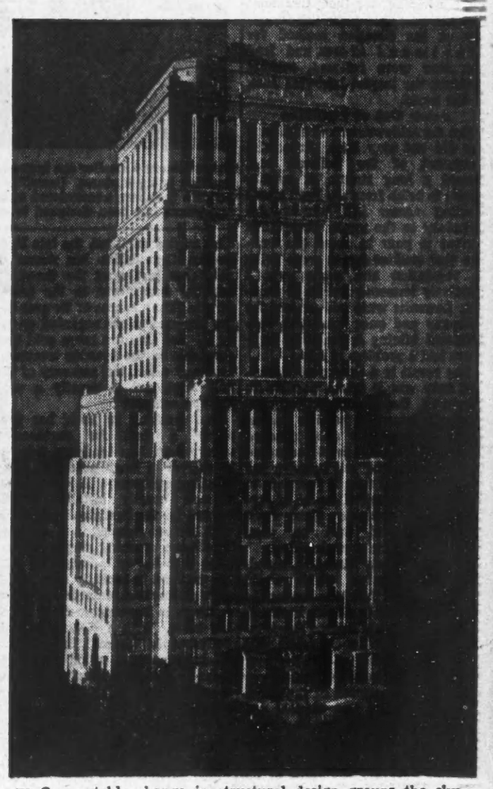
Use of set-back design in large structures has been encouraged by the progress made in increasing the strength and durability of building materials, while at the same time reducing their bulk and unwieldiness. This has meant a steady reduction in unit costs, especially in light of the per dollar value received, and permitted greater attention to appearance.

"Tallest in the British Empire," proudly declared the engineers who constructed these two skyscrapers. The one above, known originally as the Traders Bank Building, now the Montreal Trust Building, was the first really tall structure to be erected in Canada, 15 stories from ground level. It was started in 1905, completed in 1906. At the right is the present holder of the "Tallest in the Empire" record, the 34-story Bank of Commerce Building, erected a quarter of a century later in 1930-31. Both structures are within a stone's throw of each other in downtown Toronto.

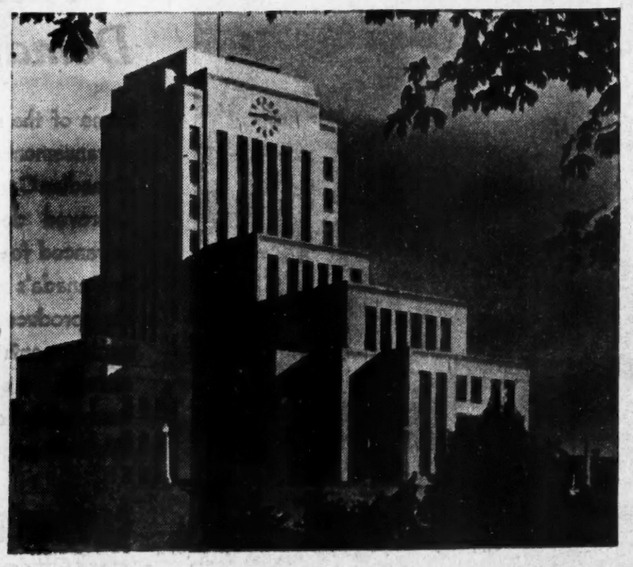
C. N. R. photo.

2 The first use of structural steel brought with it certain distinct types of architectural design which have been followed largely up to the present time. The new Hotel Vancouver, above, completed this year dates back to the chateau design of around 1895. Canada's best early example of this is the Chateau Laurier in Ottawa.



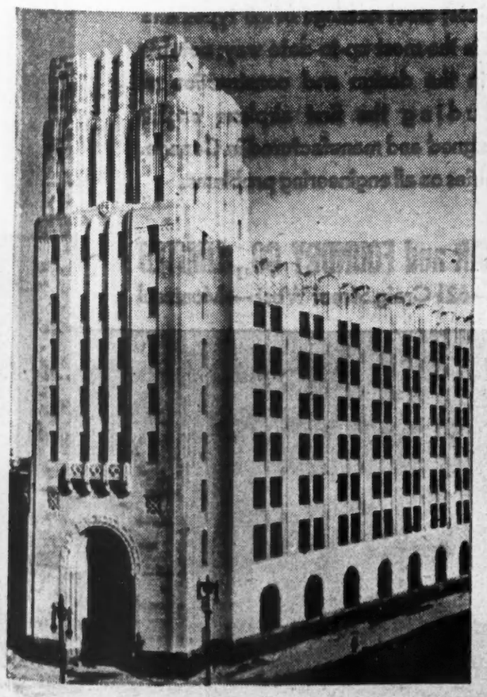


7 One notable change in structural design groups the skyscrapers of the late 1920's and '30's in contrast to the construction of the early part of the century. It can be described as pyramiding. The Bell Telephone building in Montreal (1928-29) is an excellent example of this as well as a magnificent contribution to architectural achievement in Canada.



5 Above—Toronto's latest big business building enterprise, the Bank of Montreal building on the site of the old Mail and Empire structure, will be 16 stories with a basement and sub-basement. Though architecture varies slightly, structural design is almost identical with that of its taller neighbor, the Bank of Commerce, built nearly ten years before. It will cost $1.5 million.

6 Below—The Sun Life building in Montreal is a magnificent monument to Canadian engineering skill. The first section was started in 1914 and the second in 1923. The building was completed in 1931. A basement and two sub-basements form the foundation work for a 400-foot central section. The ground area is 80,000 square feet and the total floor area 1,174,000 square feet. Horizontal compression of steel on this building created a minor flurry when plaster on walls directly below the 400-foot section started to crack soon after completion. The first theory was that the foundations of the building had not found rock and that it was settling. Later examination showed that it was simply the contraction of the steel under weight pressure.



3 Since 1912 the number of federal public buildings in Canada has grown from 328 to 612. This construction under the department of public works at Ottawa, spurred by the necessity for creating employment in recent years, has made a distinct contribution both in the field of architecture and structural engineering. This Winnipeg federal building, completed in 1936, has been duplicated in design in other Canadian cities.

4 To some extent building designs in Canada differ with the widely separated sections of the country. The Vancouver city hall, another product of the 1936 public works programmes, is typical of modern Pacific coast architecture. It first developed on a large scale in California and was probably dictated by an early impression, later proved false, that wider and lower tall buildings were better able to withstand earthquake shock. The great Tokio and other quakes dispelled that idea but in the meantime the classic beauty of these simple block type structures and the relative cheapness of their construction had gained for them wide popularity. As a rule they are constructed largely of reinforced concrete in contrast to brick and stone sheathing on structural steel used generally in the central eastern half of the country.

Reinforced concrete can be used to great advantage in these buildings, combining structural strength with architectural beauty.

A comparatively recent use of concrete permitting of impressive architectural effects is in erection of structures with exterior of monolithic concrete. In such construction, concrete is poured as a continuous operation to give coherence and unity to the whole exterior structure.

8 In most respects the tall buildings of the last 20 years have been variations of the same design stressing functional qualities. It is seen again in the Price building, which towers 17 stories above old Quebec and was built in 1928-29 at a cost of $1,170,000.

From Ore Dust to Dividends

Engineers Have Revolutionized Milling and Smelting Industry

"Recovery per ton" is a sacred phrase to the mining industry of Canada.

Ore as it ascends the shaft of a mine presents a complicated problem. It may have gold, silver, copper, nickel, zinc, lead or other valuable components. It is the job of the mining engineer to see that the ore is treated not only by the most economical method but by the method which will produce the greatest ultimate recovery.

Throughout Canada's comparatively short mining history the engineer, working in laboratory and on the field, has revolutionized the milling and smelting processes. He has been quick to realize the value of minerals once discarded as waste and to put them to new uses. He has been diligent in contributing machinery for the extraction of the last vestige of profit from the ton of ore.

Putting Nickel to Use

It was Canadian engineers at Sudbury who showed the world the possibilities in nickel, that silvery metal once discarded as useless after the copper had been extracted from the ore. Canadian engineers are working today in laboratories of the International and Falconbridge Nickel companies to find new uses for the metal.

The lead-zinc deposit at the Sullivan mine owned by Consolidated Mining & Smelting Co. was known for many years before systematic development was even considered. The ores of the Sullivan mine were notoriously complex and no satisfactory method for their treatment was known. Then came the discovery of the flotation method for treatment of ores, and lead and zinc were released, making Sullivan the largest lead-zinc mine in the world.

Assets Out of Liabilities

But the achievements of engineering did not stop here. Successful treatment of the Sullivan ores caused a long stream of smelter smoke to belch from the Trail stacks floating across the international boundary to the south. Complaints started to pour in about the damage that smelter fumes were doing to vegetation and crops over a relatively immense stretch of country. Lawsuits were laid against the company and once more the Consolidated Mining & Smelting engineers had a problem to solve.

The result is a matter of history. Not only was it found possible to eliminate the nuisance, but by-products from the smelter fumes, including sulphuric acid, resulted in development of a fertilizer industry. Year by year this industry has made steps and now it promises to become an important source of revenue for the company. Thus was a liability turned into an asset through the feats of engineering.

Another of our Canadian metallurgical enterprises which would not have got to first base but for the achievements of engineers in metallurgical practice is Hudson Bay Mining & Smelting Co. A small pilot mill was operated on this property for some time before a satisfactory method for treatment of the abundant copper ore was worked out. When this was achieved the value of the property was boosted literally by millions, for without a satisfactory recovery the value of the deposit would have been negligible.

Cyanide Treatment

The cyanide method for treatment of gold ores was evolved by a Canadian mining engineer, the late H. S. Denny. Cyanidation has meant to gold ores just what the threshing machine has meant to the wheat farmer. The chances of its ever being superseded are regarded as remote. Not only are more gold ores amenable to the cyanide treatment than any other, but recovery of the gold contained is usually a very high percentage.

Ore crushing in itself has presented a field for engineering achevement. The tendency today is to deliver a finer product to the grinding equipment. A jaw crusher is now usually installed underground for the first step in crushing with the ore reduced to 6-inch size. Two more crushing stages will reduce it to ¼- or ⅜-inch size. This has resulted in recently constructed mills such as East Malartic and Kerr-Addison, in large single-stage grinding units. With a ¼-inch product delivered to the mill instead of a 1½-inch product, grinding in one stage in "one easy step" is perhaps more applicable today than ever before.

Flotation Method

In Canada a flotation method of treatment for gold ores has been found advantageous under two conditions. The first is typified by McIntyre-Porcupine Mines where values have been encountered in association with pyrites and where a high recovery is achieved with flotation. The second case is that of the rebellious ore with an arsenic content such as the Beattie ore or the ore from the north ore body on the Hard Rock and MacLeod-Cockshutt properties. In these cases, flotations reduced the tonnage to be subjected to further treatment.

A great deal of work was done on the Beattie ore, but flotation with roasting of concentrates was found the best method. In other gold mills in Canada neither cyanidation nor flotation has provided a complete answer to the problem of gold recovery and other special treatment has been evolved by engineer staffs.

Milling Features

Some of the new features of milling in Canada include:

1. A new type of conveyor called the Johns, which is a moving pipe line of rubber to handle crushed ore from the jaw-crusher to the mill bin. Use of rubber in belt conveyors and in many points in the flow sheet has increased greatly.

2. Machines have been developed such as the Hardinge and the Jeffrey-Taylor for providing a constant and controllable feed to a mill. These feeders have many applications in the process. Some properties are using the electric eye, an adaptation of the photo-electric cell to prevent overloading and control feed.

3. A great advance has been made in the application of rubber-lined pumps for the pumping of mill pulps. Pumps in which both the casing and the impeller are rubber-covered have proved economical in handling mill pulp, effecting savings in power, maintenance and cut down costs. A sharpness and hardness of the usual Canadian ores wears out metal rapidly but has little effect on rubber.

Special greases and oils have been developed by manufacturers for use in milling mining.

Several Canadian mining properties are finding that temperature of solution is an important factor in recovery and extensive research is going on in this connection.

Roasting of Ore

St. Clair's Bertrand Robinson, mining engineer of the Bureau of Mines, Dominion of Canada, says:

"One branch of metallurgy to which greater attention must be paid is that of roasting ore and its products, especially in regard to developing the newer gold fields in which arseno-pyrite occurs in appreciable and in increasing amounts. Detecting of investigation and of practice on such ores has yet to be fully developed. A practically unknown field remains to be investigated from the chemical and physical viewpoint.

"Several innovations are still in the development stage, extremely fine slime classification on a commercial scale, filter construction and pumping, secondary crushing, clarification and precipitation are some of the departments in which normal changes may be expected."

The most striking milling innovation in recent years in Canada is the underground mill of the Big Missouri Mines near Stewart, B.C.

Extracting Sulphur

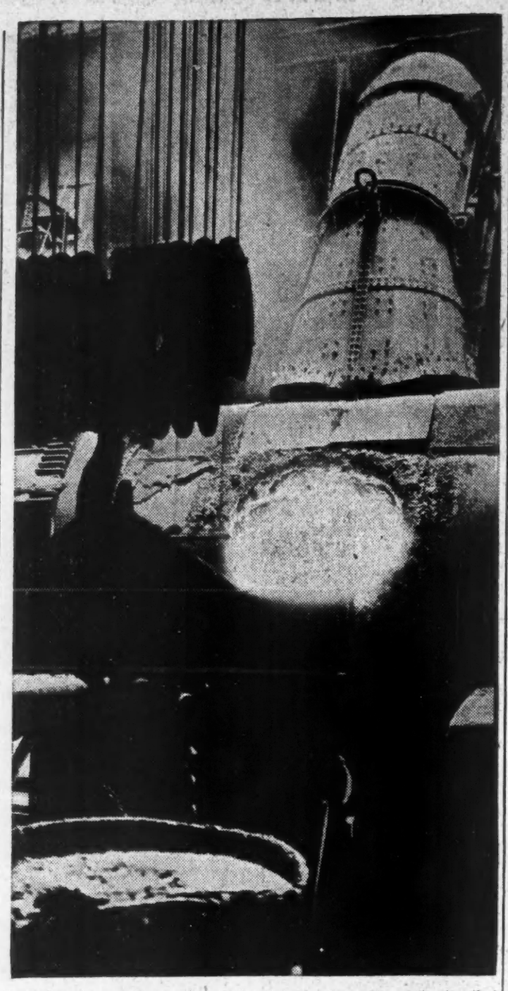
Another interesting new development is the Aldermac Sulphur plant. Here 100 tons of pure sulphur plus an appreciable tonnage of iron oxide will be produced from 250 tons of pyrite milled daily. The sulphur is suitable for all commercial purposes and the iron oxide, after sintering, is understood to be excellent feed for a blast furnace.

Classifying Ores

A new flotation machine is being introduced which aims not only to effect separation but to provide a means within the machine to trap and classify certain portions of the ore being treated. One development by the superintendent of the Britannia Mining & Smelting Co. has been a deep cell unit which provides a greater depth of froth and, therefore, effects a higher recovery at a great saving in power.

Noranda Mines have pioneered in Canada with a new form of backfill. Noranda found that very rapid cooling with water slag from its smelter granulated. It is then mixed with iron sulphide and poured into underground stopes. Noranda has found that this combination provides a hard cement which solidifies rapidly, which can be drilled at about the same rate as its regular ore and permit mining out of pillars, etc.

A somewhat novel combination of stripping with shrinkage stoke backfilling is being developed at East Malartic Gold Mines in Quebec province. Because of its gigantic low-grade ore body and its nearness to the surface, East Malartic engineers have developed a system whereby the surface is stripped down to the rock and a thick mat of timber is put on the rock surface. As shrinkage stokes are mined from underground, waste rock is piled on top of the timber mat, forcing down the surface and obviating need for backfill in the ordinary sense of the term.



Operations in a smelter are impressive, bringing home the realization that smelting is big business. Canadian engineers have worked out the metallurgical problems encountered at the various base metal enterprises and equipment has been designed to meet conditions found in this country.

Northern Transmission Lines

Power and Mining March Together

An unusually clear demonstration of the service of hydro to mining development is the record of the H.E.P.C. in Ontario north of Lake Superior and west to the Manitoba boundary.

Through this land of lakes and muskeg, often far from railroads and dependent on airplane and tractor train, the H.E.P.C. has built plants and strung its wire opening the area to mine development; providing a standing invitation for continued mine making.

The two power plants on the Nipigon River serve the Little Long Lac, Beardmore and Sturgeon River mining camps with their mines, Little Long Lac, Hard Rock, Macleod Cockshutt, Northern Empire, Leitch, Sand River, Sturgeon River and others. Only about 123,000 h.p. of the potential 300,000 h.p. available along the Nipigon River has been harnessed so far.

Further north and west, are two power developments, Rat Rapids and Ear Falls which will be linked by a transmission line within the next few months. Ear Falls is a 9,000 h.p. plant which is now being increased to 17,500 h.p., plans calling for eventual increase to 25,000 h.p. Ear Falls serves the Red Lake mining camp including Howey, Hasaga, Madsen Red Lake and McKenzie Red Lake. Immediate reason for the increase in capacity at Ear Falls is the growth of the Uchi mining area some 50 miles to the east. Developments here indicate that this whole area may eventually require greatly increased power output.

Further east 170 miles is the Rat Rapids development serving the Pickle Crow, Central Patricia mines. Now producing about 3,000 h.p., it is possible to develop 5,000 h.p. from the present power site and other sites are available along the same river, the Albany.

To provide greater flexibility of output with present equipment a power line is now going in connecting Uchi and Pickle Crow, thus encouraging exploration over a wide area which has hitherto had only the most cursory examination.

Three plants, now producing around 26,500 h.p. supply the Sudbury district which has the two great mining properties, International Nickel and Falconbridge Nickel. International, through a subsidiary, Huronian Company Limited, owns and operates four hydro-electric power plants with total capacity of around 61,800 h.p. It also controls undeveloped power sites.

As in Engineering—Craftsmanship Pays

There is no substitute for knowing how in engineering.

Not that the engineer does not dare to try the new method but back of that imaginative daring is seasoned knowledge and skill.

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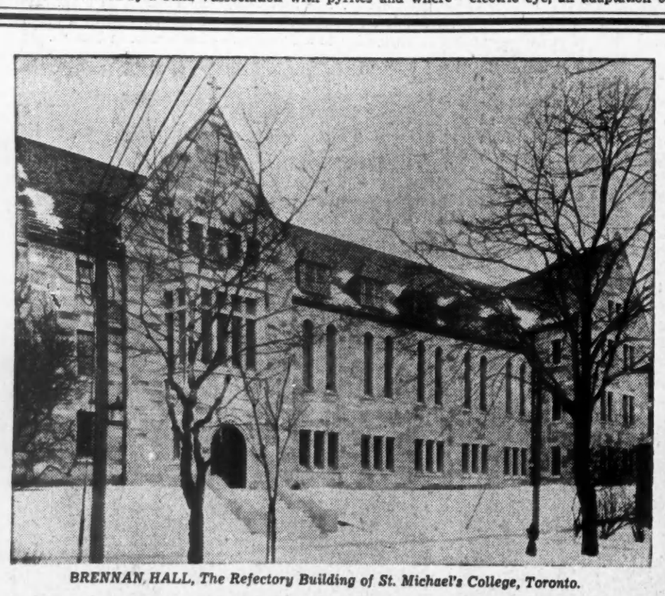

BRENNAN HALL, The Refectory Building of St. Michael's College, Toronto.

With the first sod turned June 10th, 1938, and the building completed December 22nd the same year, BRENNAN HALL is the most recent example of the economies of experience, thoroughness and skill of the Fuller organization.

Other notable Fuller-built symbols of Canadian achievement include—The Royal Bank Building, The Bell Telephone Building, C.I.L. House, Dominion Square Building, Montreal; Metropolitan Building, C.P.R. Building, Royal Bank Building, Abitibi Head Office, MacLean Publishing Company Building, Women's College Hospital Building, Toronto.

Industrial jobs include North Toronto Sewage Disposal Plant; four grain elevators in Montreal, Quebec and Port Arthur; Kipawa Pulp Mill, Temiskaming; Train Sheds, Windsor Station, Montreal, and many other Factories and Warehouses.

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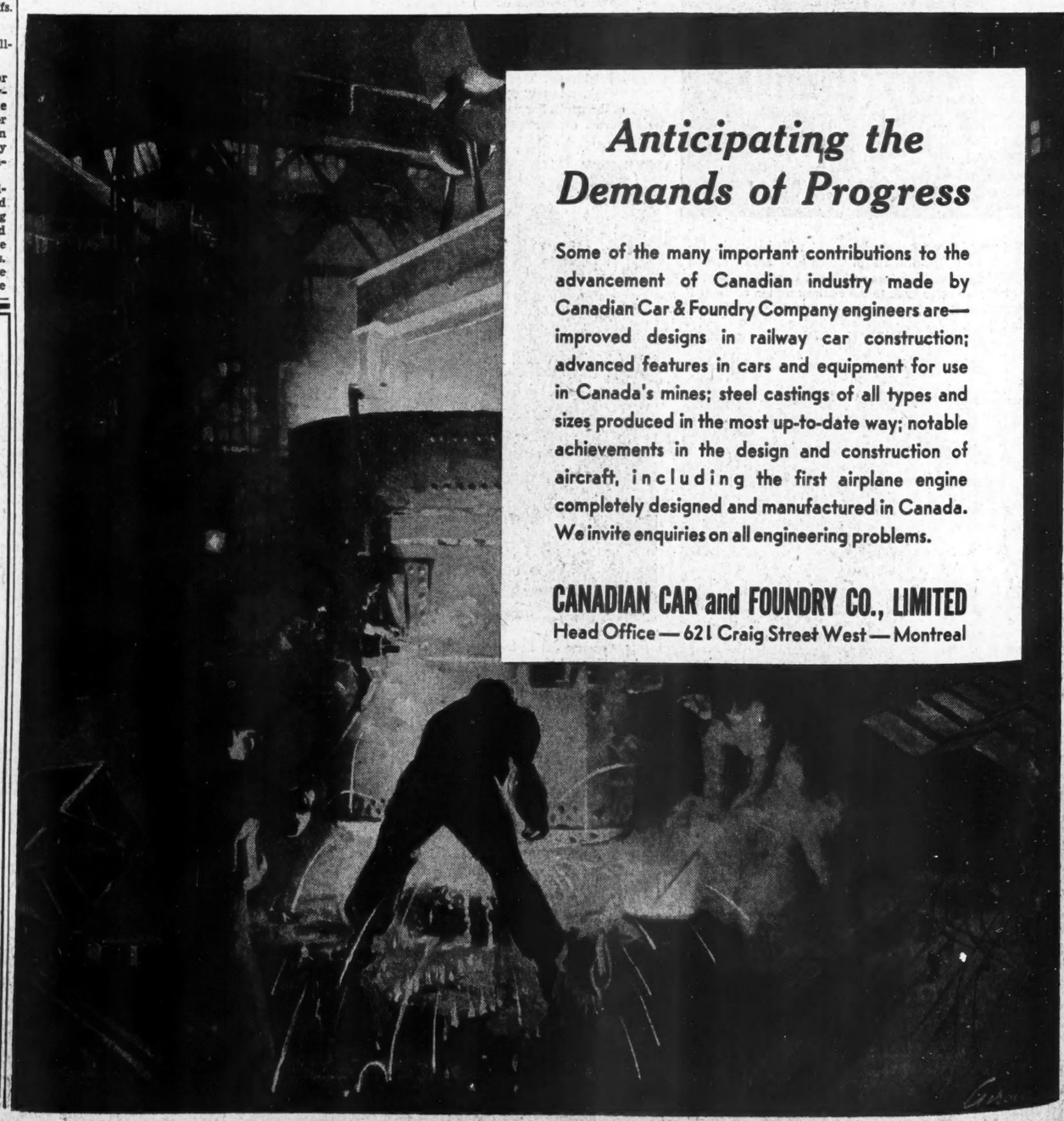

Anticipating the Demands of Progress

Some of the many important contributions to the advancement of Canadian industry made by Canadian Car & Foundry Company engineers are—improved designs in railway car construction; advanced features in cars and equipment for use in Canada's mines; steel castings of all types and sizes produced in the most up-to-date way; notable achievements in the design and construction of aircraft, including the first airplane engine completely designed and manufactured in Canada. We invite enquiries on all engineering problems.

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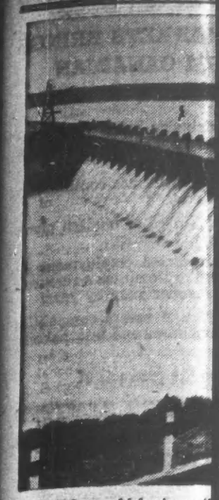

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Farming

Irrigation
to Canada'

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Largest Irrigation Scheme

The most extensive irrigatio
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line between Calgary and Med
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The canal system as constru
for the Western section consist
a main canal, with a maximum c
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1½ miles wide. Chestermere
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In the original construction o
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In the eastern section of the C.
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LIMITED
- Montreal

Bassano dam, which at one time was rated as one of the most important structures of its kind in the world, serves the great irrigation district created by the Canadian Pacific Railway east of Calgary. The embankment is 7,200 feet long with a maximum height of 45 feet. The spillway portion of the dam is 720 feet long, with a maximum height of 65 feet to the lowest foundation and 40 feet from the bed of the river to the crest. There are 24 openings in the spillway, each 27 feet clear width. This type of dam is hollow and derives most of its stability from the weight of the water on its back. The total cost of the complete structure, built by the company's own engineers, was $1.5 million.

C. P. R. photo.

Farming Arid Acres

Irrigation Has Added Millions to Canada's Agricultural Wealth

Irrigation, one of the oldest of engineering arts, has extended Canada's arable areas by thousands of acres.

Semi-arid regions in Alberta, Saskatchewan and to a lesser extent in British Columbia have been made fruitful. They are regions where two of the three factors necessary to successful agriculture are found, good soil and abundance of sunshine. Moisture alone has been lacking.

What the Canadian engineers have done in bringing water to these areas has been the subject of an intensive survey by S. G. Porter, M.E.I.C., manager of the Department of Natural Resources, Canadian Pacific Railway Co. The material following setting forth the extent of irrigation factors of Canada is based upon his research.

To William Pearce and Colonel J. S. Dennis go the credit of fostering and developing irrigation in western Canada. These two engineers were the first to bring to the direct attention of the public the desirability, and even the necessity, of providing irrigation works in the semi-arid regions of western Canada.

C.P.R. Takes Over

The development of irrigation on a large scale might almost be said to date from the time the Canadian Pacific Railway interested itself in the matter. It did not initiate the work, but the vast financial and engineering resources of the company, when put to work, gave a new and added importance to efforts in southern Alberta.

In 1912 the Canadian Pacific Railway took over the Alberta Railway and Irrigation Co. As first constructed, the A. R. and I. canal had a capacity of 400 c.f.s. It has been enlarged and extended from time to time until it now has a capacity of 1,200 c.f.s.

Including the Magrath, Raymond and Taber irrigation districts, which are supplied by it, the A. R. and I. system served an irrigable area of approximately 120,000 acres east and south of the city of Lethbridge.

Largest Irrigation Scheme

The most extensive irrigation enterprise in Canada is the system constructed by the C. P. R. to serve a large tract of land along its main line between Calgary and Medicine Hat.

The canal system as constructed for the Western section consisted of a main canal, with a maximum capacity of 2,100 second feet, running from the Calgary head-works for 16 miles to Chestermere Lake—a balancing pool about 3 miles long and 1¼ miles wide. Chestermere Lake feeds three secondary canals, branch canals from the secondary canal, and a network of distributory ditches and spillways. The total length of all constructed canals, distributory ditches and spillways is approximately 1,733 miles.

In the original construction of the western section a total of over 10 million cu. yds. of earth was excavated and the timber in structures required about nine million feet for division gates, drops, flumes, bridges, culverts, turnouts, etc. Capital expenditure for construction and subsequent improvement has amounted to nearly $6 millions.

In the eastern section of the C.P.R. irrigation block the main canal, with a maximum capacity of 3,800 c.f.s., runs easterly from Bassano Dam about 4½ miles to Little Dam where a balancing pool is created at the head of the two principal canals—the east branch and the north branch canals.

Structures Are Unique

Bassano Dam at one time was rated as one of the most important structures of its kind in the world on account of its composite character and great length. It consists of a long, high earthen embankment on the south bank of the river and a reinforced concrete spillway in the existing river channel. The embankment is 7,200 ft. long with a maximum height of 45 ft. and contains approximately 1,250,000 cu. yds. of material.

The total length of constructed main, secondary and smaller laterals in the eastern system is approximately 2,250 miles.

One of the most interesting engineering features of this district is the Brooks aqueduct. This aqueduct carries the water across a wide valley and represents one of the most difficult engineering problems encountered in the whole system. The valley is two miles wide and 60 ft. deep and the main line of the C.P.R. runs through it. This structure is a reinforced concrete grade flume on a concrete trestle. The waters pass under the railways through an inverted siphon, the section of the barrel immediately under the track being 9 ft. 9 in. in diameter.

The aqueduct contains 25,000 cu. yds. of concrete and four million pounds of steel. The total cost was approximately $700,000.

Capital expenditure for original construction and subsequent improvements had amounted to more than $12 millions when the Eastern Irrigation District took over the project in 1935.

Many Other Projects

There are a number of other irrigation projects in Alberta, some small and others of considerable importance. In the latter category are the projects of the Canada Land and Irrigation Co., Taber Irrigation District, Lethbridge Northern Irrigation District, United Irrigation District and others.

Irrigation development has not been so extensive in Saskatchewan as in Alberta, largely because of the absence of an adequate or readily accessible water supply.

Reservoirs must be constructed for the conservation of flood waters before any substantial improvement in the situation can be expected. Some progress has been made in this direction, particularly in recent years under the Prairie Farm Rehabilitation Act. The projects undertaken, however, are relatively small in comparison with those in operation in Alberta.

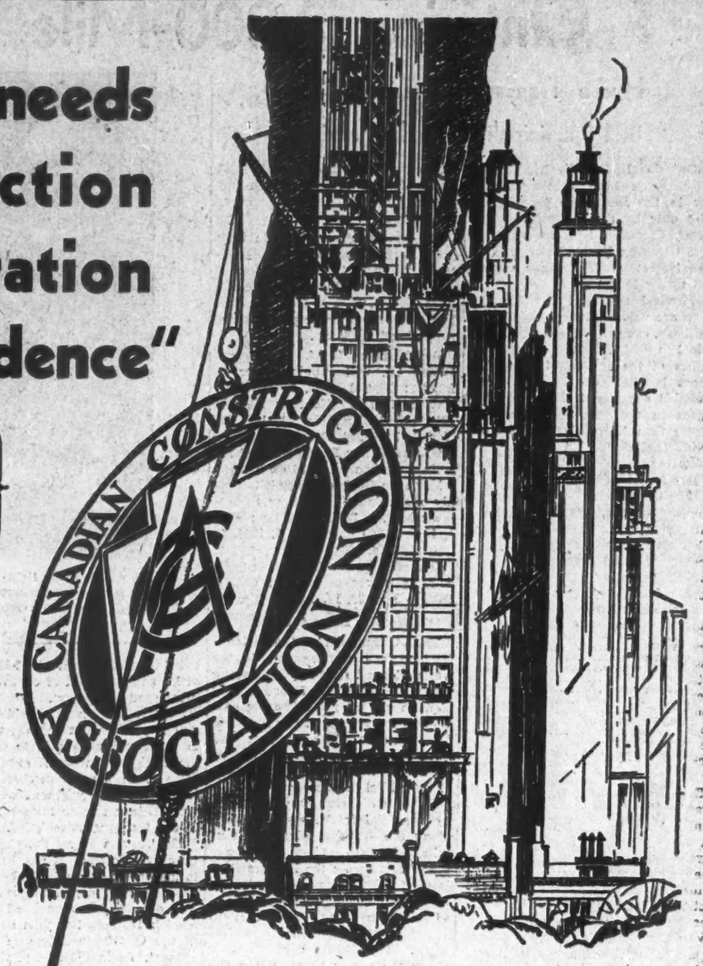
Long History in B. C.

Irrigation engineering in British Columbia has been practised since 1858 when the province was still a Crown colony. The topography of the province prevents the irrigation of any large areas such as are found on the prairies. Moreover, because the valley lands are subject to flooding, while the bench lands suitable for irrigation are too high above the main streams to be served by gravity, the problems of irrigation development in British Columbia have been many and complicated.

There are many larger domes in the world's architecture than that of St. Joseph's Oratory on Mount Royal, Montreal. It is doubtful if there are any which surpass it as an achievement in engineering. Builders of St. Peter's in Rome or St. Paul's in London produced massive structures of great weight and requiring huge columns to support them. St. Joseph's engineers found ways to reduce weight. The dome is composed of two thin shells of reinforced concrete completely independent of each other and each resting freely on a polygonal beam. These beams are supported by two rows of columns joined by a wind bracing system. The space between the tops of inner and outer shells is 63 feet and there is a winding staircase from the top of the inner dome to the observation tower at the top of the outer dome. Not only was it possible by thin concrete shells to achieve lightness but the whole work was completed in nine days. The dome now completed is shown in course of construction with an elaborate scaffolding covering its surface. After the placing of steel, guniting was used for concreting. Associated Engineers Ltd., of Montreal, was in charge of construction.

"Canada needs Construction Co-operation and Confidence"

HON. W. D. EULER
Minister of Trade and Commerce
Ottawa, Aug. 22, 1939



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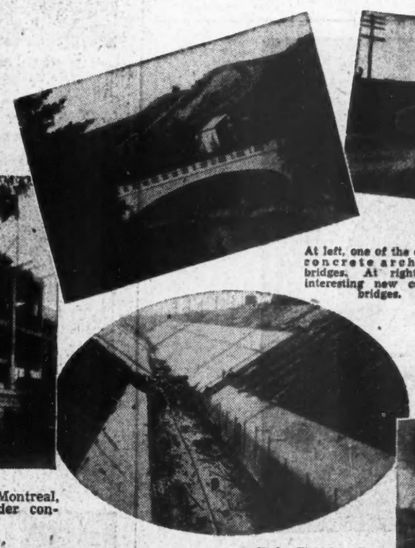
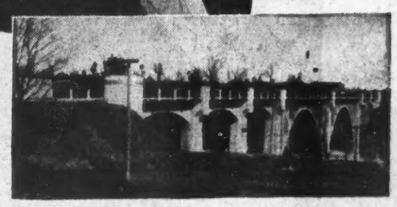
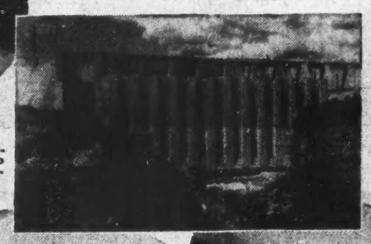
Alliance Nationale, Montreal, completed and under construction.



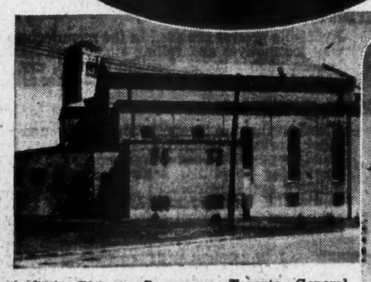
At left, one of the earliest concrete arch-type bridges. At right, two interesting new concrete bridges.



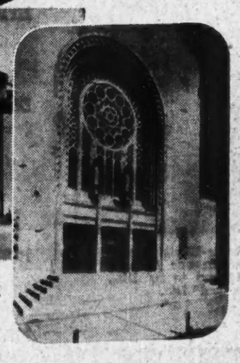


Hydro-Electric Commission of Ontario Chippewa Power Development.

Power development at Chute au Caron, Quebec.



Holy Blossom Synagogue, Toronto. General view and detail of entrance showing architectural flexibility of concrete.



Engineering has progressed steadily as man's knowledge of materials and methods of using them has improved. Stone, bronze, iron and steel have succeeded each other, giving widening scope to the engineer.

Among modern materials, Concrete plays an ever-increasing role both in the wide variety of its uses and the growing magnitude of the projects which it makes possible.

And this continuing use of Concrete by the engineer is due in no small measure to the constant improvements in the quality of its principal component, Cement.

Write us for any concrete information you require.

Concrete piles, Three Rivers Harbour.

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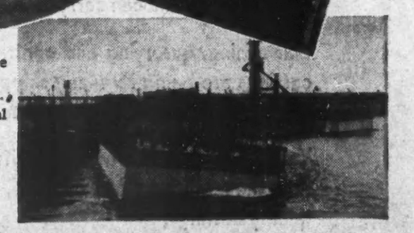
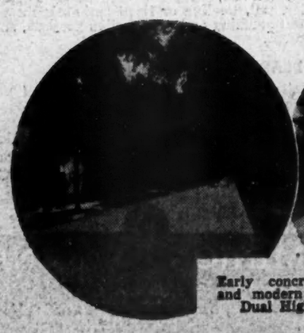
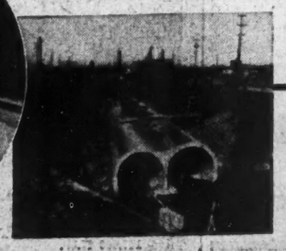


Concrete collector sewer during construction, Montreal.



Early concrete road and modern concrete Dual Highway.



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Ontario's 8,000-Mile Power Network

Hydro Transmission Lines Feed 821 Municipalities in the Province

Ontario Hydro-Electric Power Commission is the third largest utility in the Dominion, preceded in size only by the two railway systems, Canadian National Railways and Canadian Pacific Railway. It is the largest publicly owned electrical utility in the world.

Physical assets of the Commission are valued at more than $314.8 millions, exclusive of separate municipal utilities. More than 8,000 miles of the system's transmission lines blanket Ontario. The Commission operates 48 generating stations in the province, developing more than 1.5 million h.p. and an additional 620,000 h.p. is purchased. Total energy available for all purposes is 2,145,000 h.p.

The Commission controls five systems, Niagara, Eastern Ontario, Georgian Bay, Thunder Bay and Northern Ontario Properties.

Capital Investment

The following tabulation of invested capital gives an indication of the size of these hydro systems.

Invested Capital

	$
Niagara	214,698,747
Georgian Bay	11,908,373
Eastern Ontario	22,011,288
Thunder Bay	19,709,667
Manitoulin rural	74,615
Nipissing rural	44,696
Bonnechere storage	51,742
Office and service bldgs.	3,207,839
Const. plants & invest.	3,085,355
Preliminary surveys:	
St. Lawrence, Ottawa and Ogoki rivers	1,182,303
	275,974,624
North. Ont. props.	37,010,270
North. Ont. invent.	127,886
Guelph Radial	453,433
Toronto-Port Credit Ry.	2,101,867
	314,768,081
Munic. distrib. system	98,101,257
Other assets of munic.	23,952,239
	436,821,577

The Niagara system has by far the largest capacity and consumption of the Commission's systems. Largest generating plants, maximum normal plant capacity and comparative peak loads are shown below:

Hydro-Electric Generating Plants

	Max. normal plant capacity at Oct. 31, 1938 h.p.	Peak load during 1937-38 h.p.	1936-37 h.p.
Niagara System:			
Queenston-Chippawa	500,000	597,319	500,000
Ont. Pwr.-Niagara	180,000	175,603	177,614
Toronto Pr.-Niag.	150,000	148,794	145,442
Chats Falls	108,000	112,601	117,962
DeCew Falls	50,000	48,257	47,319
Hamilton steam plant	24,000	1,609	10,724
Thunder Bay System:			
Cameron Falls	73,500	76,407	79,088
Alexander-Nipigon	50,000	53,887	53,217
Abitibi District:			
Abitibi Canyon	240,000	172,252	161,796

Numerous other smaller generating stations make up the remainder of the sources of supply for the Commission. In the Georgian Bay, Eastern Ontario, Northern Ontario Properties, Nipissing districts, Sudbury, Patricia and St. Joseph systems generating plants are operated, the highest maximum normal output of which is 15,300 h.p.

Purchases of Power

In addition to its own supply of power the Commission purchases a substantial block of energy from private generating concerns. Recent writing of contracts in late 1937 terminated a dispute which the Commission had with the power companies.

The new contracts provide that:

Gatineau Power will supply 25-cycle power to the Commission at the rate of 260,000 h.p. annually from Nov. 1, 1939, to Nov. 30, 1970. The company is at the present time supplying 200,000 h.p.

Beauharnois Light, Heat and Power Co. will supply power as follows: Nov. 1, 1938, 150,000 h.p.; Nov. 1, 1941, 200,000 h.p.; Nov. 1, 1942, 225,000 h.p.; Nov. 1, 1943, to Nov. 1, 1976, 250,000 h.p.

Ottawa Valley Power contract remained unchanged at 96,000 h.p.

Maclaren-Quebec Power is to supply a maximum of power as follows: Nov. 1, 1938, 60,000 h.p.; Nov. 1, 1940, 80,000 h.p.; Nov. 1, 1944, to Oct. 31, 1970, 100,000 h.p.

Gatineau Power Co. is to supply 60-cycle power as follows: Oct. 1, 1938, to Nov. 30, 1970, 60,000 h.p.

World's Largest Plant

The Commission's Queenston-Chippawa development is the world's largest single hydro-electric power development. It is the only plant to use the full allowable economic head between Lake Erie and Lake Ontario. The turbines and generators at time of installation were the largest and most efficient of their kind in existence.

Water is diverted above the Falls by a special intake and is passed along the Welland River for four miles. It then enters the power canal, cuts across the Niagara Peninsula for 8¾ miles and through an electrically controlled sluice gate of 48 feet clear span.

The water is conducted into steel tubes, 14 to 16 feet in diameter above the power house, where the turbines are situated. This power house has nine units of capacities from 55,000 to 63,000 h.p., each under a head of 294 feet and revolving at a speed of 187.5 r.p.m. Total capacity of the development is 550,000 h.p.

The Queenston development required excavation of 17 million cubic yards of rock and earth. More than 450,000 cubic yards of concrete were used on the project.

Excavation on the development started in 1917 and the opening ceremony took place at Queenston in December, 1921. Total cost has been about $76 millions.

Rehabilitation Feat

The Commission purchased the generating plant formerly operated by the Ontario Power Co. in 1917. This had been the initial source of supply since 1910 and was enlarged to a capacity of 180,000 h.p. It has 15 generating units.

In the Niagara ice jam of 1938 the Ontario power plant was flooded with ice and water and placed out of commission. When the water receded it left the plant with 7,000 tons of ice and a deposit of oil over the submerged equipment.

Experts declared rehabilitation was impossible but engineers went to work and were able to salvage the equipment without substantial damage. On a previous occasion in 1909 when the equipment was submerged in a similar flood attempts to dry the generators failed.

The Toronto Power Co. plant was purchased in 1920. It was designed to use power obtainable only in the immediate vicinity of Niagara Falls. The average effective head developed is 135 feet, less than half that of the Queenston-Chippawa development. As in the case of the Ontario Power plant, the Commission has modernized the equipment.

Abitibi Canyon

Abitibi Canyon generating system is one of the largest plants in Hydro's systems. Situated on the Abitibi River, approximately 70 miles north of Cochrane, it was formerly the property of the Ontario Power Service Corp. The Commission assumed control in April, 1933, and placed two generators in operation in May and December of that year. The plant has five 66,000 h.p. main turbines and one auxiliary turbine of 600 h.p.

There are many other and smaller generating stations supplying power to the Commission, including such projects as Chats Falls, and DeCew Falls in the Niagara system; Cameron Falls and Alexander-Nipigon development in the Thunder Bay system.

Power Surveys

Surveys for additional power are constantly under way and in 1938 the Commission conducted enquiries into the various areas of northern Ontario for potential developments.

In 1938 capital expenditures of $10.9 millions were made, distributed as follows:

Capital Expenditures
In Year Ended Oct. 31, 1938

	$
Niagara system	3,236,680
Georgian Bay system	1,438,365
Eastern Ontario	682,015
Thunder Bay system	232,273
Manitoulin and Nipissing	41,363
Northern Ontario props.	2,945,951
Service and admin.	100,087
	8,678,684
Provincial rural grant	2,197,775
Total	10,876,459

Transmission Problems

The Ontario Hydro-Electric Commission created in 1906 has been supplying power to Ontario municipalities since 1910 and steadily decreasing costs. In addition to power development one of the major problems which its engineers have faced and solved has been that of transmission.

In 1898 when a power station was built at DeCew Falls the scientific world frowned on the suggestion of bringing power 33 miles to Hamilton. The success of this project in a sense was the forerunner of Ontario hydro achievements which followed a few years later. Today Toronto power is brought 300 miles from the Ottawa River with comparatively little transmission loss. Power from the Abitibi development is carried hundreds of miles to feed mines in northern Ontario. The Hydro network of power lines today feeds 821 municipalities, including 26 cities, 102 towns, 285 villages and police villages and 408 townships. Rural lines approved for construction in 1938 alone stretched 2,600 miles to serve 14,000 additional customers.

The Commission has recognized the "superpower" idea since 1902. This merely means the co-ordination of the requirements of many communities by interconnection.

The Ontario organization has pioneered in many ways high-voltage standards. It has contributed substantially to the design of suspension-type insulators.

Well-equipped laboratories are maintained, staffed by engineers and scientists of world reputation.

He watches tiny lights to get a minute-to-minute picture of Ontario Hydro's system. He is the key man in the Toronto area at his desk in the Leaside station, before an electrical set-up diagram, which gives him a constant visual picture of electrical connections on the system. Changing lights record switches open and closed.

Port Arthur Plant

Located on the waterfront with complete facilities for both railroad and water transportation. It is completely equipped to handle all types of pre-framing and preservative treatments.

This plant takes care of Ontario and Eastern Canada business—including the mining districts—enabling permanent installation of creosoted timber being made at economic cost.

DEVELOPING MARKETS BRINGS SMOKE FROM CANADIAN CHIMNEYS

Initiative and constructive spirit must continue to develop new markets and outlets for our Canadian products.

The efforts of this company are continuously aiming toward this end.

The construction of these two modern plants definitely proves this contention.

They have already created employment for several hundred men and are developing the Dominion's resources in a substantial and rapidly expanding manner year by year.

All this has been accomplished in the face of severe competition and under extremely adverse business conditions and international situations.

For service and satisfaction use the products of

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Prince Albert Plant

This recently constructed plant with most modern equipment and transportation facilities was erected to take care of our expanding business in the Prairie Provinces.

It is assisting in developing the timber resources of Northern Saskatchewan together with the lignite coal fields of Southern Saskatchewan from which our creosote oil is derived.

Engineering Ousts Disease

(Continued from page 37)

were of the slow-sand type, but today there are only 12 of this type in operation. Modern engineering contributions have supplanted the old style filters with mechanical units, partly of the pressure type but chiefly of the gravity type.

In addition to the success in improving water treatment, engineers have also had to grapple with basic problems in connection with intakes and distribution systems. Among the problems have been clogging of intakes and pipes with ice, and necessity of adapting designs to the bodies of water involved and topographical features of the community to be served. Generally speaking, engineering of waterworks systems in Canada has followed American rather than British principles, because climatic and other conditions are similar.

Rivalling waterworks development has been engineering contribution to the spread of efficient sewage disposal systems, as reflected in installations in Canadian centres. Latest surveys show 531 municipal sewerage systems, serving virtually all cities and towns and many villages. However, the number of centres where predisposal sewage treatment has been added to sewer and discharge systems is still relatively small.

Because of the accessibility of large lakes and rivers for disposal and dissolution, and the progress made in assuring pure water supplies, the installation of sewage disposal systems (with and without treatment) has tended to lag behind waterworks development. In recent years, extension of disposal facilities, particularly treatment units in larger centres, has been held up by municipal financial difficulties.

Currently, however, a number of major projects for sewage disposal and treatment systems are under consideration. Toronto authorities are awaiting a report by experts on various alternative schemes, including the recommendation submitted several years ago by the city's engineering consultants (Gore & Storrie) for a $12 millions treatment and disposal plant. (The northern sector of the city is already served by a modern disposal plant discharging purified effluent, but the rest of the city is served by an old unit able to treat only 50% to 60% of sewage discharged through it.)

Kingston, Ont., has completed many of the preliminary steps for launching a $970,000 sewage project. Action to provide sewage treatment for the Border Cities area in Ontario will have to be taken in the not-too-distant future, as terms of the international border waters treaty require sewage treatment to match that of facing American cities, notably Detroit. The Dominion Government plan to close the old Welland Canal will eventually force such communities as St. Catharines, Meritton and Thorold to provide treatment of wastes discharged into the canal.

These and other sewage schemes under consideration will undoubtedly be capable of completion at less cost and with greater efficiency because of the advances in recent years in engineering methods and the reduction of costs.

Our Customers Will Still be Served

Despite unusual activity, our plant is thoroughly equipped to satisfy all demands on the part of our customers.

Our reserves of raw materials are always planned well ahead and our working stocks are more than ample for present needs and can carry us well into the future.

Our mining, quarrying and contracting maganese steel castings are being regularly shipped to all points of the compass, both at home and abroad.

You can place orders with Sorel Steel in the full assurance that they will be filled on time, in any quantity, with quality castings.

SOREL STEEL FOUNDRIES LIMITED
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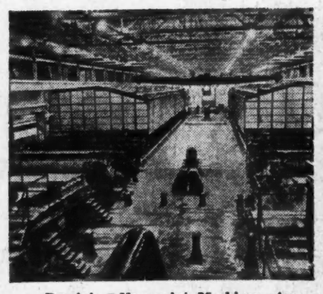
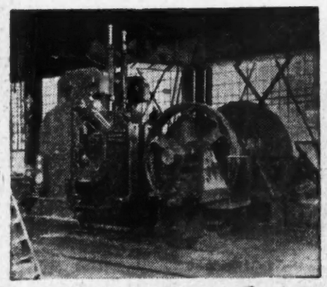
MONTREAL TORONTO SWASTIKA VANCOUVER



Dominion Newsprint Machines at Baie Comeau.

44" Dominion Blooming Mill in Hamilton Plant of the Steel Company of Canada Limited.



Dominion Hydraulic-Electric Gear-Cutting machine in our Lachine Plant—cuts gears up to 20' Dia., Pinions as small as 4" Dia.

Dominion-built Electric Steam Generators at Canadian International Paper Company, Gatineau, 4 Units Shown — Total Capacity 147,000 K.W.

A Vital Arm of Canada's Major Industries--

PAPER-MAKING MACHINERY—
Canada leads the world in high-speed newsprint production.

HYDRAULIC TURBINES—
Canada leads the world in developed hydro-power per capita. More than 90% of all electric power used in Canada is hydro-power.

ELECTRIC STEAM GENERATORS—
Canada leads the world in utilizing hydro-power for the production of steam.

MINING MACHINERY—
Canada leads the world in the production of metal and is an important producer of gold, copper, lead, zinc and a variety of other industrial metals.

ROLLING MILL MACHINERY—
The largest rolling mill in Canada, a 44" Blooming Mill installed in the Hamilton plant of The Steel Company of Canada Limited, was built by Dominion.

WATERWORKS PUMPING EQUIPMENT—
Dominion centrifugal and axial-flow pumps and valves compare favourably in efficiency with the best in the world.

TRANSMISSION MACHINERY—
Every industry in Canada needs gearing. Dominion is equipped with a gear-cutting machine of its own design and manufacture, capable of making the largest and heaviest gearing used in Canada.

HYDRAULIC PRESSES—
Hydraulic presses are used in the manufacture of automobiles, railway locomotives and rolling stock, shoe leather, toys, bank-notes, boilers, rubber goods, insulating board, dry ice, lead pipe, munitions of war and a thousand and one other articles of every-day use.

DIESEL ENGINES—
Diesel engines are the most economical source of power in mines and other works in isolated locations removed from hydro-power; as stand-by or emergency power supply for vital services; as portable power for propelling boats; for operating machinery used in building and construction; lighting and signal systems for transcontinental airways; railway switching and branch-line service; equipment for national defence, and a variety of other useful and essential purposes.

RUBBER and PLASTICS MACHINERY—
Mills, mixers, calenders, tubers, continuous vulcanizers — Canada grows no rubber, but exports millions of dollars' worth of manufactured rubber goods annually.

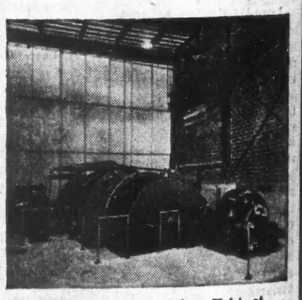
MATERIAL HANDLING EQUIPMENT—
Cranes, shovels, dragline excavators, hoists, revolving cranes; crawler, rail, floating or fixed mounted; these are the requisite of material handling and construction projects, and in many industrial operations.

ROLLER BEARINGS—
Dominion makes the heavier and special types of roller bearings which are essential items in modern, heavy machinery construction.

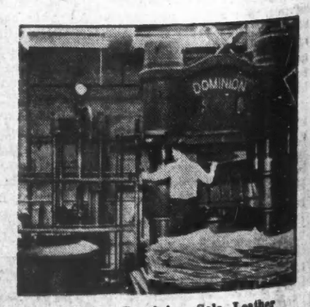
In all of these branches of engineering, Dominion is equipped with the most modern machinery to make, in Canada, the largest and most efficient equipment used by these major Canadian industries.

DOMINION ENGINEERING Company Limited
MONTREAL CANADA
TORONTO WINNIPEG VANCOUVER

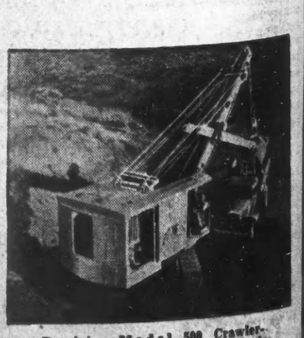
One half-million horsepower is developed by Dominion Turbines at Beauharnois. Photo shows generator floor.



10-ft. Dominion Mine Hoist at Buffalo-Ankerite Gold Mines Limited.



3,600-ton Dominion Sole Leather Press built for Beardmore Leathers Limited.



Dominion Model 500 Crawler-Mounted Shovel—2 cubic yards Nominal Rating.

PING MARKETS BRINGS
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and constructive spirit must con-
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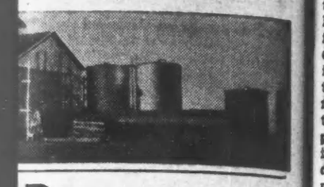
King St. East, Toronto



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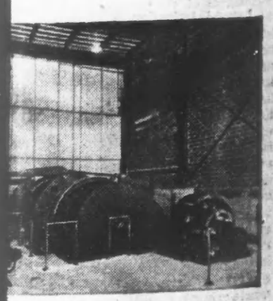

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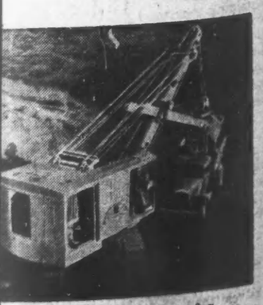


minion Model 500 Crawler-
unted Shovel—2 cubic yards
minal Rating.

Engineers Double-Check Industry

Engineering Standards Set for Canada By Voluntary Co-operative Organization

By W. R. McCAFFREY, B.A. Sc., M.E.I.C.
Secretary, Canadian Engineering Standards Association

For the past 20 years the Canadian Engineering Standards Association has worked quietly and with very little publicity in the performance of a national service in the interests of Canadian industry.

The scope and progress of its work has been measured by the limits of the moral and financial support from industrial organizations. It is not a department or branch of the Dominion Government, though its head office is located in a government building, and in spite of the fact that it is closely associated in its work with the National Research Council. The latter relationship places it in the fortunate position of being able to co-operate closely with the council in its work, and particularly with the division of the council which is responsible for the preparation and the establishment of specifications primarily for government purchasing purposes and of codes for the conduct of certain phases of governmental work.

Voluntary System

If the work of standardization through such a medium as the Canadian Engineering Standards Association should cease, due to lack of co-operation by industry, however, there is a Dominion Government Department that undoubtedly is prepared to carry on such work. This provokes consideration of the desirability of continuing with the establishing of voluntary standards through comprehensive interests within the C. E. S. A., or the alternative of accepting compulsory standards established under governmental direction.

The C. E. S. A. was organized in 1919 by a group of public-spirited citizens, most of whom were members of the Canadian Society of Civil Engineers, better known today as the Engineering Institute of Canada. They recognized the trend toward the standardization of manufactured products and proceeded gradually to follow the lead of industry in Great Britain, where what is known now as the British Standards Institution had recently been incorporated.

Objective of the C. E. S. A.

The C. E. S. A. was established for the primary purpose of promoting industrial economy through the publication of national standards that would be acceptable to all interests. These were to include:

1. Specification for materials.
2. Standard dimensions for basic part of variable assemblies.
3. Methods of testing and establishment of safety codes to eliminate or reduce accident and fire hazard.
4. Establishment and acceptance by industry of standard nomenclature.

This general development of standardization has tended toward better business practice, a foremost requisite for the progress of Canadian industry.

The set-up of the Canadian Engineering Standards Association can be summarized as follows:

(a) Main Committee — Members are elected for a period of three years from among approximately 75 members of the governing body. It includes representatives of manufacturing industries, railways, public utilities, Dominion and provincial government departments, trade associations, insurance interests, and labor organizations. In addition to acting as the executive it gives final approval to all proposed standard specifications and codes of practice and grants authority to publish them under the name of the association.

(b) Sectional Committees—Small groups of authorities in their respective fields such as civil, mechanical, electrical, automotive, engineering, ferrous metallurgy, steel construction, etc., are appointed by the main committee. They are responsible for checking specifications prepared by the working committees.

(c) Working committees—Organized under the sectional committees to prepare standards on specific subjects and revised published specifications to keep pace with changing conditions and practices.

Few Paid Workers

The activities of the C. E. S. A., with the exception of a small staff at headquarters in Ottawa, are entirely of a voluntary nature. Only those who have been engaged in the work of standardization can appreciate the great amount of time and labor expended by members of various C. E. S. A. committees without recompense other than personal gratification at being in a position to perform such public service.

Work of the Canadian Engineering Standards Association is limited by the fact that it is responsible for its own maintenance. Its primary basis of support is through sustaining memberships which now number about 125. It is significant, however, that some of these interests appreciate the urgency of the work to such an extent that they subscribed to as many as ten memberships each.

Running Its Own Show

The advantages of industry thus running its own show on a purely voluntary basis have been well expressed in an article by Bancroft Gherardi, vice-president of the American Telephone & Telegraph Co., in which he says:

"Industries, like people, are more willing to abide by regulations which they set up for themselves than they are to follow rules laid down by some external agency. Because the provisions included in these national codes represent a crystallization of the accumulated wisdom of industrial experience and are the result of painful trial and error in many cases, they constitute a symposium of the best methods of meeting the technical problems of safety, therefore they become the guides for industry itself and are voluntarily adopted and followed. In their development, industry has taken the leadership and has supplemented its own knowledge by the experience of insurance companies and regulatory bodies.

"Most of the advantages of self-regulation through national codes rather than by legislation are self-evident. Since the codes are developed by those interests chiefly concerned, the spirit of co-operation leads to greater ease of administering the regulations; and because insurance companies are always represented on committees, there is a singleness of purpose in the national codes and the insurance regulations that relieves the manufacturer of the embarrassment of trying to follow two masters who have set up conflicting requirements."

The C.E.S.A. has at present no less than 30 subjects on its active list. In the field of civil engineering, revisions to existing specifications for such materials as Portland cement, and concrete and reinforced concrete, and a large number of new specifications on building materials are under way. The development of the latter subject is in co-operation with the National Building Code committee of the National Research Council, which is engaged in the preparation of a suitable building code for use in Canada.

In the mechanical engineering field, many subjects are nearing completion, including the proposed Canadian regulations for the construction and inspection of boilers and pressure vessels, and the proposed Mechanical Refrigeration Code. In addition to these, a considerable number of proposed specifications for manufactured products in this field are in various stages of development.

In the field of electrical engineering, the fourth edition of the Canadian Electrical Code—Part I, covering inside wiring rules, is now being published, embracing considerable revisions to the third edition which was published in 1935. This document is the basis of electrical inspection in six of the nine provinces, i.e., wherever an electrical inspection department has been established, and in the principal municipalities of the remaining three provinces.

Another important feature in the electrical field is the Canadian Electrical Code—Part II, which includes some 60 or 70 separate specifications forming the basis for approval of electrical equipment and appliances manufactured in or imported into Canada. Fifteen or twenty new standards in this group are in various stages of development.

The working committee dealing with outside wiring rules is being reorganized, but temporary groups are proceeding with the development of standards for overhead crossings, which will include regulations governing the construction of,

(a) Power supply lines and trolley lines crossing railways,
(b) Communication lines crossing railways, and
(c) Communication lines crossing power supply and trolley lines.

It is the hope of power utilities that these standards for overhead crossings will replace the existing regulations of the Board of Railway Commissioners.

In addition to the foregoing, a number of subjects are also under development in the field of ferrous metallurgy, non-ferrous metallurgy, and steel construction. Standards for nickel alloys are included under the second heading, while a revision to the existing specification for steel structures for buildings and a new standard for welding, to apply to steel structures, is progressing under the section of steel construction.

Electrical Equipment

One important work which, it is expected, will be turned over to the C.E.S.A. before the end of the year is the administration and enforcement of standards for electrical equipment and appliances. The association will have all electrical equipment, domestic or imported under its jurisdiction and will be responsible for granting approval certificates and issuing labels for approved appliances.

The association approaches its problems from the points of view of both producer and consumer. Its organization has been kept elastic so that the present set-up of working committees can be augmented at any time by the request of some specific interests. It welcomes requests for standardization as well as offers to participate in preparation of standards. It would far rather have interested groups help in preparation of standards than remain indifferent or resort to destructive criticism after the event.

The C.E.S.A. does not take the initiative in establishing a standard for a specific subject concerned. Such an attitude would defeat the principle of voluntary standardization. The majority of the problems can be solved by presenting them for discussion to groups of representatives of all interests concerned. It does not profess to solve, directly, all the problems of industry, but functions as a medium whereby kindred interests may be assembled for the working-out of mutual problems, through the efforts of their own representatives.

Engineering Clears the Streets

Thinning out the forests of poles and electric wires which once encumbered Canadian city streets has led to their almost complete elimination in some sections of the largest cities. This has been sought and understood by the general public chiefly as an improvement in street appearance and reduction of street hazards.

But in a far more important sense, and to the much greater concrete benefit of the public, progress accomplished reflects engineering advances and the competent initiative of Canadian engineers.

Civic pride and urban beauty, desirable as they may be, are too intangible to justify the considerable expense of taking down poles and wires; constructing underground conduits; and designing power and communications cables capable of carrying heavy loads through these ducts.

The engineer recognized and sought to overcome the justifiable public objection to the one-time forest of city poles, and the obstructive, dangerous wires which once festooned streets like gigantic "cat's cradles." But it also devolved on the engineer to strive for and attain practical objectives which would be both desirable in themselves and provide economic justification for street clearance programmes.

Latent Benefits

Considering the substantial benefits shown by engineers to be latent in underground channels for electric cables, and the success achieved in devising means of gaining these benefits, it is surprising that Canadian progress in the field has not been even greater.

Complete underground conveyance of wires and cables is confined pretty well to the downtown sectors of the largest cities and a few progressive small towns. Away from the central portions, removal of poles and underground channelling has been largely undertaken by telephone systems. The above-ground equipment of light, power, street railway, street lighting, and signal systems still lingers on most streets.

Telephone Progress

The extensive progress made in developing underground telephone conduits has been partly in the interest of operating efficiency and good public relations. In Ontario 76% of urban Bell Telephone wires are below ground, and the Quebec ratio while not as high is equally impressive. Such work has been motivated to some extent, of course, by sheer physical necessity of carrying thousands of wires and heavy cables elsewhere than on street poles.

As far as the Bell Telephone operations are concerned, progressive refinement in underground cables has been paralleled closely by development of underground conduit and cable systems. While the conduits have remained unchanged for the most part, number of wires capable of being placed in a single conduit has increased until now cables can contain from 1,800 to more than 2,100 pairs of wire. Twenty years ago, cable would not hold more than half such numbers of pairs.

In the Bell Telephone western area (covering most of Ontario) nearly 1.4 million miles of exchange or urban wires are in underground cable, a ratio of 76%. Even in regard to toll or interurban cable, considerable headway has been made in the province, and underground wires account for over 10% of the 189,000 miles of toll wires.

Power Cables Different

In regard to power and light transmission, development of comparatively thin single wires and cables to carry high voltages, and the higher cost of underground systems, has left the interests concerned without the same incentives as the communications concerns.

But engineers have shown that while the initial cost of underground systems is 2½ to 3 times that of overhead equipment, the greater durability of underground cable makes the annual cost over the cable lifetime no greater. In addition, such headway as has been made in underground work has shown that underground cables can be operated with greater efficiency, less power loss in transmission, lower maintenance costs, and other advantages.

Considered Verdict

In a considered analysis of the economic and engineering justifications for underground power cables, presented publicly several years ago, R. E. Jones, electrical distribution engineer of the Ontario Hydro-Electric Power Commission, came to this conclusion:

"While the first cost of underground construction is higher than for overhead, the former has advantages that tend to reduce this difference when considered over a period of years.

"Poles and cross arms deteriorate more rapidly than cable. Sleet storms and lightning are two hazards to overhead lines not encountered with underground. Trees must be constantly trimmed to maintain service with overhead wires. And with a fire, these wires are a hazard to the firemen."

Success in Montreal

Chief headway in putting underground the wires and cables of all systems — power, communications and signals—has been made in Montreal, where consistent removal of overhead poles and wires has not been confined to the downtown district. For the past 25 or 30 years, the Montreal Electrical Commission has been carrying out a planned, carefully organized and compulsory programme of clearing streets in various parts of the city of the overhead obstructions. Every year definite areas are selected for the orderly and gradual clearance of overhead wires, some of which are put into conduit systems built and rented by the Commission, others into ducts provided by the private utility companies.

In Toronto, the progress has been noticeable and commendable in comparison with conditions of 20 years ago, but has been contributed to largely by the Bell Telephone Co. In general, the thinning out of overhead systems through the city and clearance of the downtown area have been without any compulsion or progressive, comprehensive plan. Such inclusive progress that has resulted has been the product of voluntary and co-operative action by the publicly owned tramway and power system, civic authorities, and telegraph and signal companies.

The Toronto programme, while it has brought street clearance and underground work in some central sections, has consisted largely of reduction in number rather than removal of poles. Prevailing policy has been to bring about joint use of poles by the different wire systems instead of putting all underground.

To the practical engineer, chief benefits of underground conduits and cables for power and communication wires in urban centres are increased operating efficiency, lower maintenance costs, greater durability of installations, removal of overhead wire hazard and obstruction. On the surface, and as far as the public is concerned, most striking advantage is improved appearance. Above photos made in Montreal show the contrast between streets before and after completion of underground conduit projects.

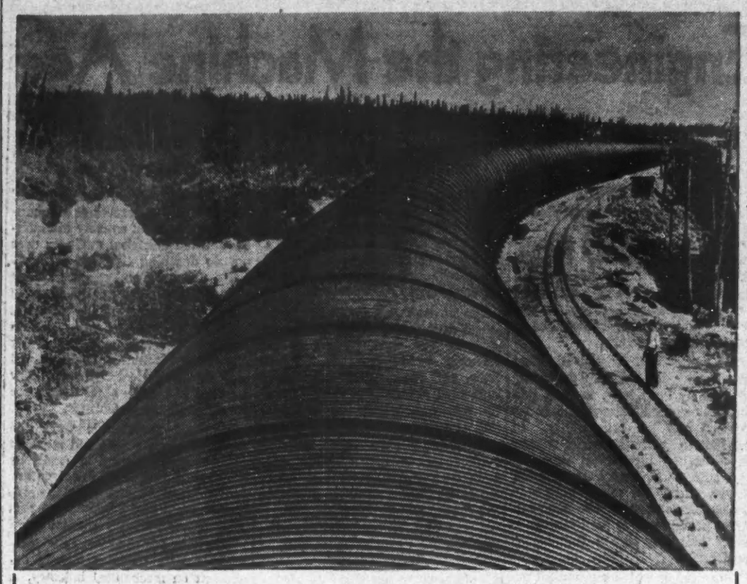
Emergency Power Plants

In addition to the fuel stations referred to a number of the hydro-electric distributors maintain auxiliary fuel power stations for emergency use. While there is also some use of this equipment during periods of peak demand, its auxiliary nature is indicated by its unit output being only about 1% of that of the main plant fuel equipment.

The largest auxiliary station is the 29,500 h.p. Hamilton station acquired by Ontario Hydro. B.C. Power Corp. has a 24,200 h.p. steam turbine plant at Vancouver and a 6,000 h.p. plant at Victoria. Montreal Light, Heat & Power Cons. has a 22,000 h.p. station in Montreal and the municipality of Winnipeg one of 14,740 h.p. The Winnipeg Electric Co. is maintaining a similar standby plant of 12,000 h.p.

Calgary Power Co. operates two auxiliary plants in Calgary, one of 14,650 h.p. and one 4,500 h.p. and a number of smaller stations at various points throughout its transmission area. At Sentinel, Alberta, East Kootenay Power Co. has a steam turbine plant of 13,334 h.p. to supplement the output of the Elko and Bull River hydro plants.

Many of the large industrial companies also maintain fuel standby plants, while a number of the small municipalities in the West depend for their electricity supply upon Diesel and other internal combustion engines.



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Engineering the Machine Age

Mechanical Engineer Has Turned Canada's Economy Into New Path

By R. W. ANGUS
Professor of Mechanical Engineering, University of Toronto.

Of the many branches of engineering that has speeded Canada's progress through the years, none has rendered a more varied or more comprehensive service than the important division broadly classified as mechanical engineering.

The basic principles of mechanical engineering, the skill and ingenuity of its exponents, have reached into virtually every field of Canadian industrial and general activity. In addition to the several major spheres in which the mechanical expert is the sole or principal engineering figure, there are many others in which he has essentially supplemented or paved the way for the work of other branches of the engineering profession.

The field in which mechanical engineering serves is so broad, and its functions have been so diffused into many realms of activity, that it is difficult to define its basis, in brief compass for a lay audience, with much exactitude. However, it may properly be said in a general way that this branch of the profession embraces anything to do with the working and operation of fabricated metal—and beyond that to the processes that led to the fabrication of the metal.

Considering the essential part played by products of metal in Canada's development and progress, the broad range of the contribution of mechanical engineering becomes quite apparent. From the tilling of the soil and the primary processes of our basic industries down to production of such delicate mechanisms as watches, the competence of the mechanical engineer finds a necessary, vital place.

Application to Industry

Greatest function and fruition of mechanical engineering have been, of course, in the evolution of general industry in its modern manifestations. While evident in the harvesting and processing of natural products, the service of the mechanical engineer is most notable and widely known in the field of secondary manufacturing. Here it operates not only in devising methods for actual production of manufactured articles, but in planning and directing creation of the machines, big and small, required for such production.

Canada being a young country, many of the principles and mechanisms used by Canadian industry have originated in other countries. But Canadian engineers have built up a proud record of original research; devising of new methods and equipment; and adapting accepted practice and machines to Canadian requirements.

One need look no farther than the tremendous development of Canadian fabricating industry during the past 50 or 60 years, and the roster of our big producers of machinery, tools and instruments, to believe that the mechanical engineer has done his work well.

The counsel and work of mechanical engineers has played a major part in the development of all branches of industry on modern lines, and successful fulfillment of such basic stipulations as high quality, accuracy, speedy mass production and controlled costs.

He has not only contributed the methods and equipment making possible such standards, but in many cases has helped to make available the special metals and other materials essential to modern industrial processes.

Varied Uses

Mechanical engineering plays a very important part in every industry using machinery of any kind.

In the mining industry, for example, there is an immense amount of machinery used. Rock drills are needed for breaking out the rock, cars for carrying it, hoists for lifting it to the surface, crushers for breaking it up. Grinders must be set up for finer grinding, conveyors for moving material about and for bringing material for back filling the mine. Air compressors are required for supplying air, Diesel engines for driving machines and generating power.

The great amount of such machinery, including gears, wheels, shafts and other integral units, were all conceived by mechanical engineers and built in engineering shops.

For buildings and bridges steel is rolled in steel mills in which the rolls are made by mechanical engineers. All the equipment in these mills, such as shears, grinders, locomotives, blowing engines, etc., are mechanical. The structural shops that turn the rolled steel into bridges and buildings use rivetters, rolls, punches, shears, forges and hoists made by mechanical engineers.

The electrical industry builds motors, generators, etc., for industrial purposes. But the processes of manufacture are almost entirely mechanical and the electrical engineer does not do anything like the complete work. The wire and copper bars are formed by machinery, the parts of the electrical machine are turned in lathes, balanced in machines, cast in foundries, welded and generally formed by machinery designed and built by mechanical engineers. The bearings and many other details are purely mechanical features.

In the hydro-electric work the water turbines, cranes and much of the other equipment is made by mechanical men, as are the elevators, penstocks, governors, racks, ice protection units and a very large part of the other auxiliary equipment.

The railroads use steel rails, locomotives, cars and are largely dependent on mechanical industry.

The architect of a large building uses the mechanical engineer to provide his heating, ventilating and air-conditioning equipment, to make his plumbing features, his elevators, heating boilers, all of which form a fairly large proportion of the total cost. Modern air-conditioning machines in houses, theatres and public buildings are mechanical products.

Few realize that the so-called electrical refrigerator is almost entirely the product of mechanical men. While the power supply and motor are electrical, the pump, compressor and actual refrigerating units are all mechanical in principle.

Serves Chemical Industry

In chemical industry the method of combining substances to form such materials as soap, toothpaste, etc., is due to the chemical engineer. But once he knows what he wants, the job is turned over to the mechanical engineer to design and build the machinery for making the product at low enough cost to sell.

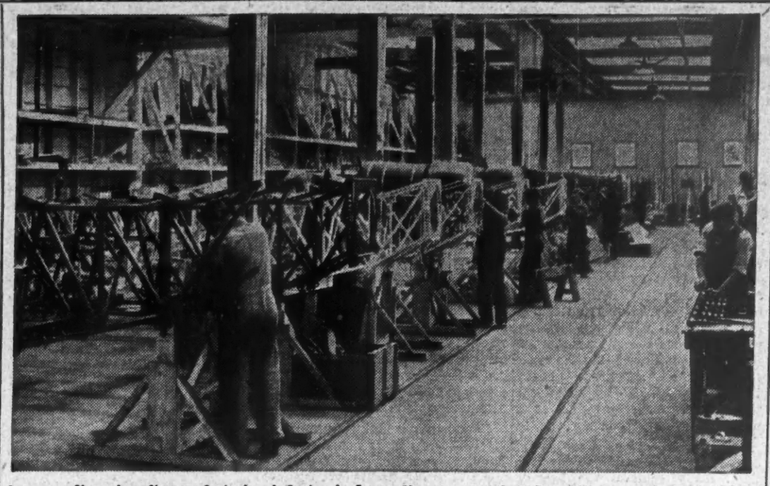
The automobile is entirely a product of a mechanical nature. These are but a few highlights reflecting the field of usefulness of mechanical engineers and to show that Canadians have risen to their opportunities.

Pioneer Air Research

W. R. Turnbull was the father of aeronautical research in Canada. In 1902 he constructed the first Canadian wind tunnel at Rothesay, N.B. He commenced the research work which established him as the Canadian pioneer in this field. Only two years before the Wright brothers had begun the work which led to the first heavier-than-air flight in 1903.

The first Canadian wind tunnel was powered by a heavy four-bladed fan-propeller driven by an electric motor. The fan was mounted at one end of a rectangular box 6 ft. long and 22 inches square. Air was pushed through the tunnel at 10 miles an hour, a very small fraction of the wind velocity obtained in modern tunnels.

In 1907 he published the first Canadian Aeronautical Research paper. Subsequently he discovered many important laws and principles of aerodynamics.



An expanding aircraft manufacturing industry is demanding more engineering skill in meeting orders from military and domestic sources. An assembly line at the Ottawa Car Manufacturing Co. is shown above.

Research

Research is Saving Canadian Industry Many Millions

The electric industry in England years ago combined for research purposes. The organization spent some £80,000. The saving thereby brought to the industry today is estimated at more than £1 million per year. In the iron and steel industry, co-operative research led to a saving of £400,000 per year in coke alone and £1.5 million in finished steel.

Canadian industry is doing a big research job, but, declares Major General A. G. L. McNaughton, dynamic, many sided director of the National Research Council, not enough industrial research is going on. "We are allowing ourselves to remain in a position of dependence upon other countries. We are paying tribute on an enormous scale; we are not obtaining and passing on to the Canadian people the benefits which they have every right to expect.

"It is only when researchers are working on the ground that they can do their best work; only then that they can take into account the special advantages, and special problems.

"We must consider the cost of not doing it. There is no use in resisting the natural trends of development. We must put trained investigators to work."

First Flight in Canada

J. A. D. McCurdy, a native of Baddeck, N.S., was a Canadian pioneer who contributed to the development of heavier-than-air craft.

He completed construction of his historic "Silver Dart" in Nov., 1908, and Feb. 23, 1909, made the first flight of a flying machine in Canada.

The London Times carried the following dispatch from Dr. Graham Bell, inventor of the telephone, in whose laboratory McCurdy performed his work.

"First flight of a flying machine in Canada occurred here today when Mr. Douglas McCurdy, a native of Baddeck, N.S., flew a distance of about one-half mile at an elevation of about 30 ft. above the ice on Baddeck Bay in an aeroplane of his own design, named the 'Silver Dart.'"

Century of Waterworks

The first public water works system in Canada was erected at Saint John, N.B., in 1837. Toronto was second in 1841 and western Canada followed a number of years later as that territory opened up.

By 1900 the expansion of water works systems in Canada had begun to take place. Most recent figures show a total of 1,258 public systems in all. These works serve 54% of the total population of the Dominion.

Aeronautical Engineering

Progress of Aviation Opens Up New Field for Canadian Skill

Progress of aviation in Canada during the past 20 years and current expansion of the Canadian aircraft industry are opening up prospect of great expansion of the already great contribution of aeronautical engineering to Canadian development. Particularly does the present outlook promise greater scope for the aeronautical engineer trained and practising in Canada, who hitherto has found little or no opportunity to work in his own country.

To date there has been comparatively little pioneering of airplane structural development in this country. Manufacturers have relied almost entirely upon the products of other nations' aeronautical brains, and Canadians with desire to enter this youthful branch of science have had to go abroad.

The fact that Canada has few native aeronautical engineers cannot be blamed on the reluctance of Canadians to enter the profession. The present generation of young Canadians are evincing a keen desire in airplanes and airplane manufacturing. Many youths have enlisted in the R.A.F. since Britain began its expansion programme.

Few Canadians

In the handling of planes and their operation there has been little to indicate that Canadians have any less than normal interest. Quite the reverse, in fact. But the country has been able to develop few engineers.

Because the population of Canada is limited, the market for airplanes has been a comparatively small one. Nor is it large enough to support a large aircraft industry engaged in manufacturing planes for domestic use only. It has therefore been found uneconomic to design and manufacture planes for Canadian use except on a limited scale. Manufacturers have relied largely upon the designs and patterns of foreign aircraft concerns and assembled or made the parts here.

Technical schools have aeronautic courses providing training for young men, but this training has its limitations. Higher educational qualifications are necessary if the student wishes to enter the design office.

Higher Qualifications

To attain this position it is necessary to have rather exacting qualifications. He must have the necessary education in engineering, practical experience, and above all a natural aptitude.

This, of course, applies to the elite of the industry, the highly qualified designers. In the transportation field there are a vast number of jobs that will open up as aviation develops more and more in this country. There are highly trained pilots, pilot navigators, despatchers, meteorologists, radio operators, technicians, etc.

Industry's Responsibility

Finally there must be places in Canada's aviation into which these individuals will fit. That is the responsibility of the manufacturers and transport companies.

Prof. T. R. Loudon, professor of applied mechanics, faculty of applied science and engineering, and head of the University of Toronto's aeronautical course has this to say in regard to the manufacturer's responsibility:

"I wish to point out that none of this training will succeed unless the manufacturer and operator encourage the use of our more highly trained men. If properly trained men cannot get employment in this country, they will go elsewhere as they are doing. England is taking our men from us . . . I appreciate the problem of the Canadian manufacturers. They are beset by politicians and friends trying to get their young men into the airplane industry; and so we obstruct the road for future development . . . The time is not far away when we may regret not having developed to its utmost our birthright of airmindedness."

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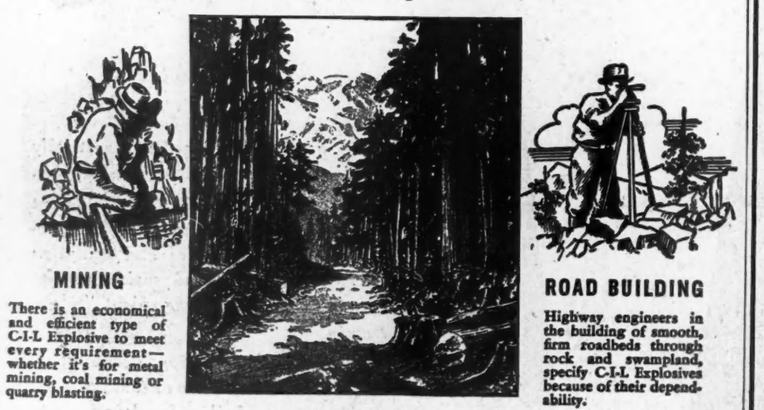

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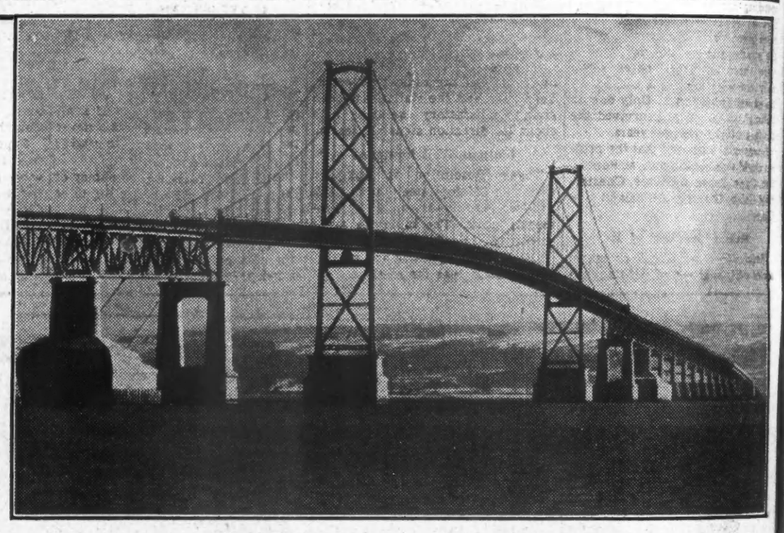


Isle of Orleans Suspension Bridge, Quebec, P.Q.

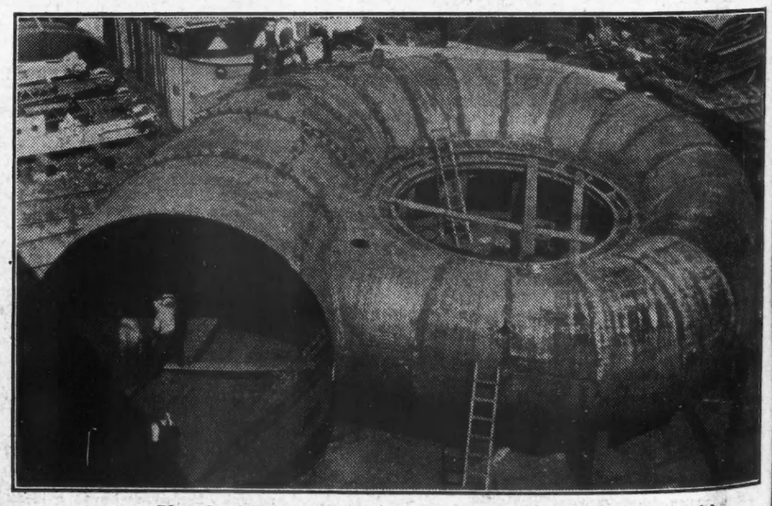
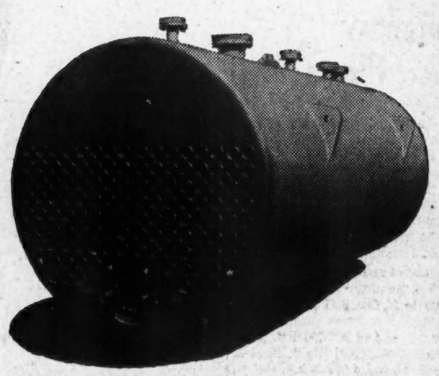
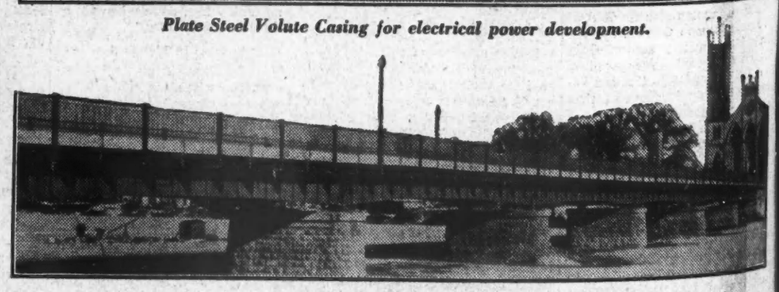


Plate Steel Volute Casing for electrical power development.



Welded H.R.T. Boiler in Queen's Hotel, Montreal.



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Aviation Opens Up for Canadian Skill

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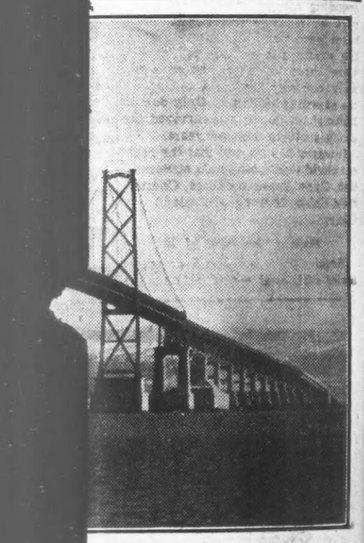
This, of course, applies to the elite of the industry, the highly qualified designers. In the transportation field there are a vast number of jobs that will open up as aviation develops more and more in this country. There are highly trained pilots, pilot navigators, despatchers, meteorologists, radio operators, technicians, etc.

Industry's Responsibility

Finally there must be places in Canada's aviation into which these individuals will fit. That is the responsibility of the manufacturers and transport companies.

Prof. T. R. Loudon, professor of applied mechanics, faculty of applied science and engineering, and head of the University of Toronto's aeronautical course has this to say in regard to the manufacturer's responsibility:

"I wish to point out that none of this training will succeed unless the manufacturer and operator encourage the use of our more highly trained men. If properly trained men cannot get employment in this country, they will go elsewhere as they are doing. England is taking our men from us . . . I appreciate the problem of the Canadian manufacturers. They are beset by politicians and friends trying to get their young men into the airplane industry; and so we obstruct the road for future development . . . The time is not far away when we may regret not having developed to its utmost our birthright of airmindedness."



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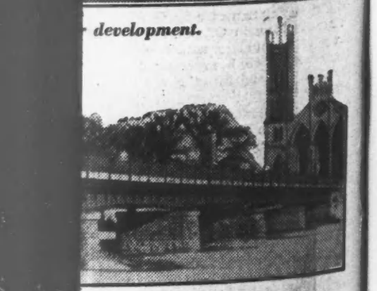

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The Voice of Canada's North

Gasoline Powered Radio Units Give Constant Link with Arctic

If you are "cussing" at static or interference spoiling the best radio programme of the evening, the object of your blasphemy might be the steel masts rising from rock at Resolution on the northern coast of the Hudson Straits. It might be the gasoline-powered transmitter on Nettingham Island far to the north in Hudson Bay. It might be the still infant voice at Coppermine on the Arctic breaking through.

It might be any of these, but it won't continue to be long if the radio engineers in the Marine Branch of the Department of Transport can solve their latest problem.

The fact that interference from northern radio stations is worrying the Ottawa engineers is a happy sign. It means that the real and vital problems of radio communication in the Arctic have been met and overcome. Twelve years of work and planning have established a chain of radio transmitting stations, five in Hudson's Bay and one in the North West Territories, which are in constant communication with Toronto, Ottawa and Winnipeg.

Functioning Smoothly

The last two annual reports of the radio branch have referred only in routine fashion to the regular operation of these stations. They are working smoothly, fulfilling their functions of guiding shipping over the Hudson Bay route, giving information to planes and sending weather reports to Toronto.

This last function is particularly useful. Arctic stations are located in the land where Canada's weather is made.

The work of creating a northern radio service was started in 1927 when prospects of the Hudson Bay shipping route became a definite factor. While Ottawa was still spending money on the now ghost port at Nelson, flying and radio bases were being constructed along the straits and in the bay. There were three of these bases originally contemplated and picked by the expedition of 1927. Only one on Nottingham Island has survived the changes of subsequent years.

It was not until 1929 that the present chain was established at Resolution, Cape Hopes Advance, Chesterfield Inlet, Nottingham Island and Churchill.

Making the Best of It

Resolution is an island or rather series of islands which boasts not a single tree and hardly a shrub. Market garden experiments by radio operators have been confined to the quickest growing form of edible vegetation known—lettuce. The experiments have failed. Rock cliffs 150 to 200 feet high rise out of the sea. In only a few spots is there a possibility of landing even a small boat.

But Resolution is the last point of land at the entrance to the straits and the obvious spot for a direction-finding radio station to pick up eastbound shipping. Engineers had no choice but to make the best of their location.

Before any materials for buildings or radio equipment could be landed at Resolution engineers had to construct a 1,400-foot aerial tramway from the sea to the rock highland. On this, lumber, steel towers, gasoline power plants and materials for concrete were brought to the site. By the same route 60 tons of coal as well as supplies for 12 months are landed yearly.

Clearance Essential

The perfect location for any radio station is a level stretch giving complete clearance for radio masts and having few surrounding obstructions. It is still more important in the case of a direction-finding station for shipping. By sending a continuous signal to a ship a direction-finding station enables a skipper to determine accurately the direction from which the wave is coming and therefore his own bearing from the point. By picking up signals from two or preferably three stations he can find his own location in any weather within a matter of feet.

Any obstruction near the sending point, however, can divert the wave and completely destroy the trustworthiness of the signal. Resolution Island is nothing but rock obstructions with hardly a foot of level ground.

A mixture of concrete and brains finally solved the radio problem at Resolution and the station has been giving satisfactory service with about 250 direction signals a season.

Stations Well Equipped

Today Resolution is equipped with two 150-foot steel radio masts and two gasoline-driven 6 kv.a generating units. The buildings are a combined operating and power-house, a dwelling house and a light-house. Each year the steamer N. B. McLean lands and takes off two radio operators and a cook. If at all possible the department never leaves a man at an Arctic station for more than one year.

With slight variations the story of the establishment of Resolution is the story of Cape Hopes Advance, midway through the straits on the south shore, of Nottingham Island, one of a group in the Bay through which the shipping channel is routed and Chesterfield Inlet on the east coast of Hudson's Bay north of Churchill.

Cape Hopes Advance and Nottingham have both short and long wave transmitters and complete direction-finding equipment. At Churchill there is a 1,000-watt C. W. and I. C. W. long wave transmitter, a 500-watt short wave transmitter, and a 100-watt radio telephone. Nottingham Island station can, if necessary, reach Ottawa direct, but the usual procedure is to relay all messages through Churchill. Most of these messages are weather reports collected daily by the meteorological office in Toronto.

For three centuries inland transportation in Canada's northland depended almost entirely on canoe in summer, dog train in winter. Then a year or two after the Great War, without any intermediate development, came the swiftest of all transportation, aviation. Today prospector, miner, power plant builder, trapper and arctic retailer are the most constant users of airplanes, and Canada leads the world in the amount of air freight handled.

Coppermine Station

The Coppermine station located in the North West Territories where the Coppermine River empties into the Coronation Gulf on the Arctic Ocean, is the youngest of the radio chain. It was established chiefly to give service to planes engaged in opening up this new Canadian mining field. It has 500-watt long and short wave transmitters and radio telephone equipment. Gasoline is used to generate power. Materials for the building of the Coppermine station were carried by steamer from British Columbia around the coast of Alaska. A combination of good luck and seamanship narrowly averted the whole outfit ending up at the bottom of the Arctic. The only water route now used is by way of the Mackenzie River.

The Coppermine station acts as a direction finder for planes as well as relaying constant weather reports to pilots. Its service is supplemented by eight permanent and one summer station operated by the Department of National Defense signal service at points along the Mackenzie River, and in the Yukon.

Vital to Shipping

The marine service given by the Hudson Bay stations can be summed up in the one fact that without them there would be no shipping route to Churchill. This may or may not be a justification for their existence, but so long as the route is used that existence is vital. There have been few casualties on the Hudson Bay route in recent years, but the department report for 1932-33 contains the stereotyped reference to the foundering of the Bright Fan in Sept., 1932, without the loss of a man.

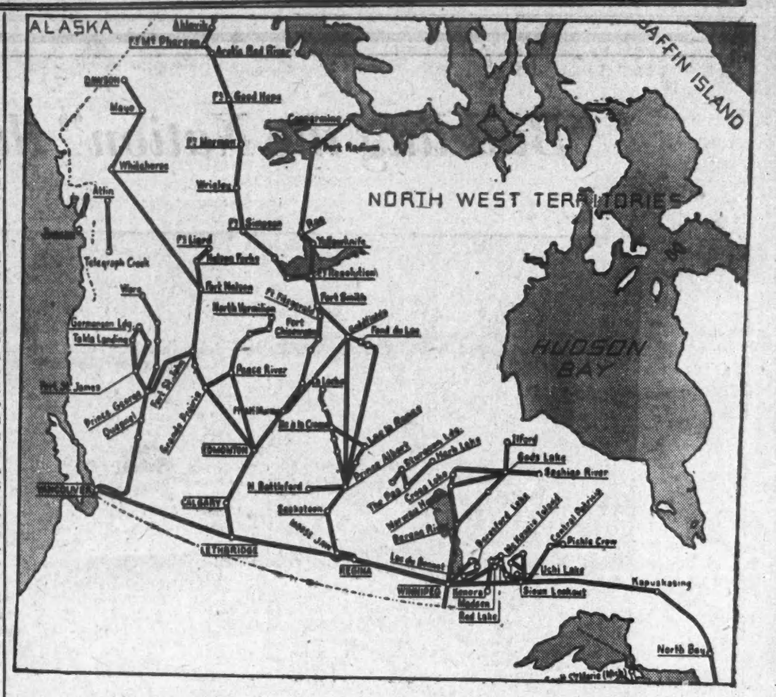
The Bright Fan was proceeding through the Straits under radio direction when she hit an iceberg. Stations at Resolution and Cape Hopes Advance immediately gave her her position and the N. B. McLean went to the rescue and picked up the crew shortly after the ship sank.

Only one factor of Arctic radio broadcasting has not and cannot be conquered by engineering science. In a real emergency the modern world has to resort to the most primitive of safeguards. At every radio post the Canadian Government subsidizes one or two Eskimo families. These retainers do odd jobs around the post and to some extent earn their pay. But the real reason for the subsidy is to provide a means of escape if necessity arose.

The radio operator lives daily under the threat of being isolated completely if fire or hurricane should wipe out the one slender thread with the outside world—his radio transmitters. If this happens, there is only one thing to do and that one thing he is powerless to do alone. The Eskimo alone holds the secret of the north, the secret of how to exist on those rocky coasts or how to escape from such a prison.

While the Arctic stations are strictly utilitarian the Canadian Government in 1930 started a regular broadcasting service for the benefit of northern settlers. These broadcasts give news, time signals, a few programmes and personal messages. They work on the following schedule:

Station	Call letters	Wave	Time
Coppermine	VBK	525M	11.05 p.m. Wednesday and Saturday
Chesterfield Inlet	VBZ	540.5	10 p.m. Tuesday and Friday
Port Churchill	VAP	540.5	11 p.m. Monday and Thursday
R.C.M.P. Schooner St. Roch	VGSR	450	11 p.m. Wednesday and Saturday



Canada's regular air routes throughout the North could never have been developed without the radio. The government station at Coppermine in co-operation with subsidiary and private stations provide the instant communication necessary to guide air traffic, locate freight and passengers.

Detouring of Niagara Biggest Engineering Feat

No section of this St. Lawrence waterway plan provides anything like the engineering problems met and conquered in construction of the 27-mile Welland canal between Lake Erie and Lake Ontario. It is the difference, in fact between spanning Niagara Falls by a navigable water route and passing St. Lawrence rapids which were navigated to some extent long before the days of canal dredging and locks.

Over 12,000 Stations in Lighthouse Service

The lighthouse service of Canada lies along many thousands of miles of coast and lake and river and has finally reached the Arctic ocean by way of the Mackenzie. The service consists, in round numbers, of 2,000 lights; 400 fog signals; 600 gas and signal buoys; 12 lightships; 9,000 unlighted buoys, beacons, and day marks; a total of 12,000 individual establishments.

Lighthouse Illumination Based on Welsbach Burner

Fifty years ago lighthouse illumination was confined to kerosene burned on a cotton wick, the Argand circular wick burner being then still in use. It was not until the early years of the present century that a notable improvement was made by the use of kerosene oil vapor burned under an incandescent mantle.

This improvement was made possible by the invention of the Welsbach mantle, which placed at the disposal of lighthouse authorities the means of producing a light of high intensity combined with compactness. The vapor burner consists essentially of means of vaporizing kerosene and burning the vapor under a mantle.

Canada 6% Water

About 6.2% of the area of Canada is covered by fresh water. It has the largest fresh water area of any country and it is estimated that over half the fresh water on the surface of the earth is contained in the Great Lakes System.

A NATIONAL ELECTRICAL SERVICE...

In the great Northern Electric plant in Montreal are centred manufacturing, distributing and merchandising services, vast in scope, varied in character, and always keyed to meet the ever-changing problems of to-morrow. Whatever equipment is required to generate, transform, distribute or use electricity for industrial, residential or any other purpose is available from any one of the twenty-one branches of the company strategically located in the important centres of the Dominion.

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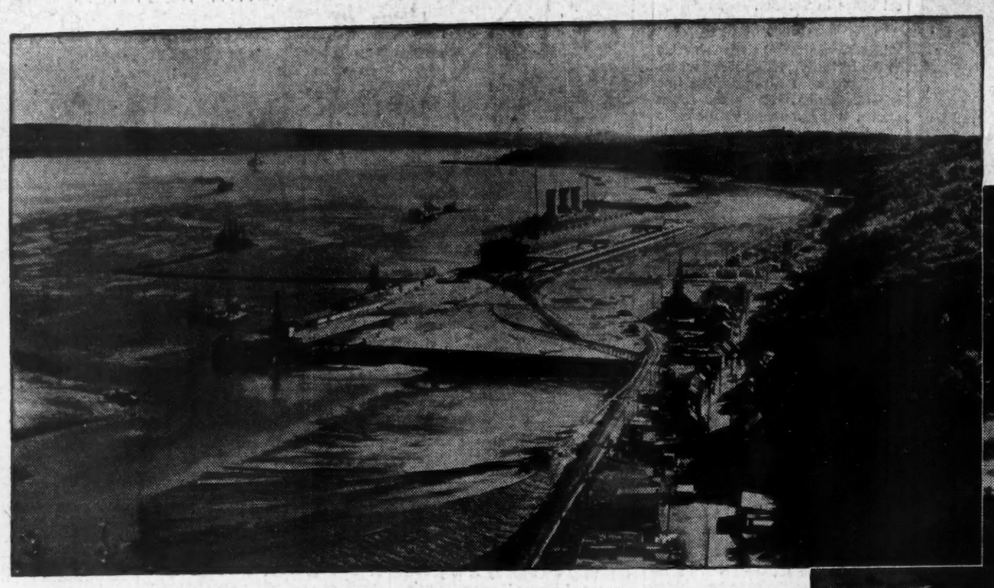
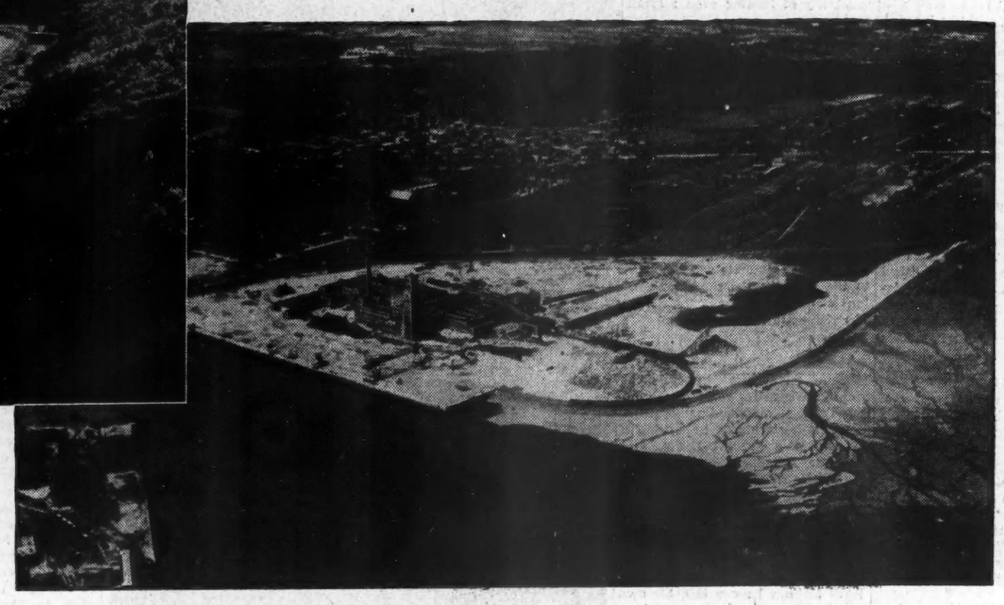
"Building the Nation" through Dredging · Shipbuilding · Engineering





Above: The Empress of Britain at her new Wolfe's Cove terminal berth in Quebec, on completion of her maiden voyage. More than 400 acres of new harbour land was created by Marine Industries' hydraulic dredges on this job. Similar improvements and the creating of new land areas have been, and are being, carried on at Chicoutimi, Three Rivers, Sorel, Montreal, Toronto and Vancouver Harbours.

Right: Aerial view of the Anglo Canadian Pulp and Paper Mill, Limoilou, Quebec. 1,800,000 cubic yards pumped by Marine Industries' dredge "General Wolfe" from the confluence of the St. Charles and St. Lawrence Rivers built up the ground on which this plant was erected as soon as filled — enabling the mill to operate a full year sooner than otherwise possible.

DEEP RIVER

The St. Lawrence ship channel is inland Canada's "Main Street" to and from world ports. Deepening and widening of that channel is one of the important jobs of Marine Industries Limited

Nature created the St. Lawrence River as a mighty artery of commerce from inland Canada to the sea.

Interestingly the St. Lawrence is a river which does not carry sediment, the silt being deposited in the settling basins of the Great Lakes.

Thus, with clear water, after the widening and deepening of the channel for modern shipping needs, no further dredging is required except at the entrance of a few tributary streams.

Present plans for deepening to new draught, with a thirty-five foot channel, will be completed by 1940.

To improve and widen this great shipping avenue demands organized and competent dredging, not alone to deepen the channel but in the valuable work of building up port shore lines for harbour and industrial use.

Marine Industries Limited through its years of experience, its capable personnel, and its modern equipment, is a valuable factor in meeting the nation's dredging requirements with efficiency and economy.

Subsidiary ship yards for ship building and repair work, plus old-established machine shops and foundries at Sorel, round out the complete qualifications for service of the Marine Industries organization.

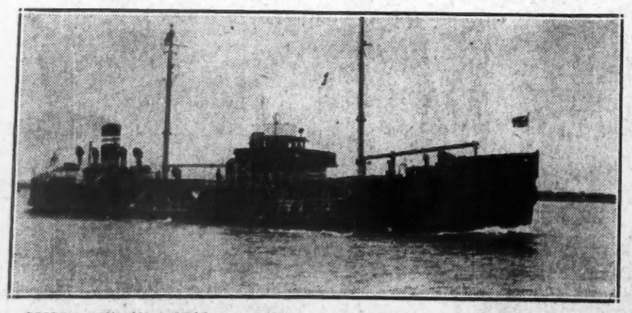
DIRECTORS

J. SIMARD, President	E. de G. POWER	P. A. LAVALLEE
Col. H. S. TOBIN	J. ED. SIMARD	A. LUDGER SIMARD

MARINE INDUSTRIES LIMITED

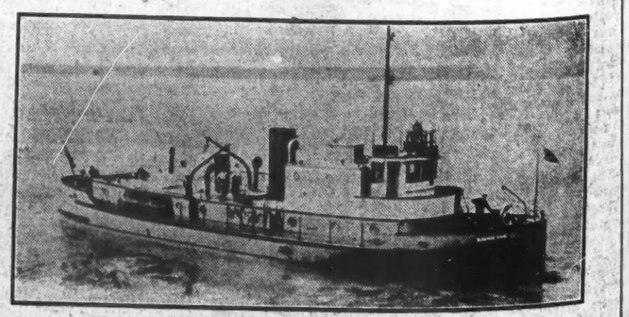
Successors to GENERAL DREDGING CONTRACTORS LIMITED, MANSEAU SHIPYARDS LIMITED, SOREL MECHANICAL SHOPS LIMITED

Plants at: Sorel, P. Q.; Quebec, P. Q.; Vancouver, B. C.
Executive Offices: Marine Building, 1405 Peel Street
MONTREAL, QUE.



M.V. "Petrolite" launched last fall at the Marine Industries Limited's building yard at Sorel, Que. In oil carrying service for the Imperial Oil Company Limited.

Diesel-Electric Hydraulic Dredge "General Brock," operating on St. Lawrence River ship channel—the last word in modern suction dredges.



S.S. "Radium King," Marine Industries built, "knocked down," shipped to Great Bear Lake, N.W.T., and re-assembled for the Eldorado Gold Mines Limited.

The Nation Busine

Equality of Sacrifice Sound Fiscal Policy

THE Dominion Governm lost no time in telling C that equality of sacrifice is from those who stay at hom as those who don the khak

Within a day after decla war with Germany, we propriated as large a sum cute our war effort as w during the entire period o struggle by means of war The new taxes announced are a notification to all C as well as to the world country means business in lization for war.

Even more important is cision, forecast in The Post last week, that Canada to prosecute this war on a you-go" basis. The easy wa have been to permit indu agriculture to fatten on th of war. Instead the Governm wisely to face the huge cost ada's war effort by an imme crease in taxation.

Taxes announced this w noteworthy in two respect encourage industry to gear war effort and establish ne ing power and needed capital without hampering strictions. They recognize th tial need for rapid amortiz new plant and equipment pu for war purposes.

• • •

AS THE war proceeds, so rowing will be inevitab ing Minister of Finance, J. L warned against this in his speech this week. Mr. Ils pressed confidence that the rowings can be kept with Dominion itself.

Whether this is possible pend on the length of the on the part which the U. S. w mately play therein. At pre are prohibited by the Neutra from borrowing in that mark extent to which Canada's re and equipment can be used Allies and the price levels a we sell these goods is equally tant.

Whatever borrowings may future be necessary must b to a minimum. They can b there if there is a determinat only on the part of all Canad do their bit, but also by Gove itself to eliminate waste in t duct of public business.

Such a programme will de considerable personal sacrifice a self-discipline on the part of ev Canadian. This is a respons which all Canadians must shoulder as their reasonab tribution toward the comm of victory and ultimate peac

• • •

Outlaw Waste In Public Business

ONE OF the first jobs whic ister of Finance Ralston set for himself now that the of his first war budget has b proved, is to eliminate was public business.

All who have held the hig of Minister of Finance in could point to savings that have been made in public ex tures once the pressure of p expediency is removed. The ency of war opens the way now up to political leaders their bit in "equality of sac by tackling public waste.

One immediate opportuni saving is found in the triad of wheat bonuses and railway The recent rise in wheat pric already saved the Governmen where from $75 to $100 millio creased traffic will also redu railway deficit and relief should decline sharply if not ly as new productive effort a unemployment slack.

All these savings are for sums which will automatical lieve the public treasury much effort of sacrifice on th of the Government. Equally tant opportunities for saving achieving more economical ope of the railway itself; in cance of unneeded, extravagant unpr tive public works expenditu the "pork barrel" variety; by ence on further economies i vincial and municipal administ of relief.

Businesslike adminfstratio public affairs is the least tha be expected of Government contribution to Canada's war Savings of at least $150 m annually could readily be mad

This is a job for every po leader who believes in equal sacrifice.

• • •

Wheat Prices Control A Tough Nut to Crack

ONE OF the toughest price trol nuts which Canada wil to crack in the near future is Declaration of war has al shoved the price at Winnipeg 50 to 75 cents a bushel. No the announcement last week Canada will harvest one of the est crops in history was able t more than a few cents from a level which had risen st each day by the maximum perm amount.

The dilemma which must be is that of adjusting the wheat m to an entirely new situation. market has barely recovered an unprecedented glut of which no one seemed to want western farmers are sitting with little or no intention of l their wheat go until price

(Continued on page 2, col.